

HANDBOOK OF BRITISH GUIANA 1913

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THE
BRITISH GUIANA
HANDBOOK
1913.

CONTAINING GENERAL AND STATISTICAL INFORMATION CONCERNING THE
COLONY, ITS INDUSTRIES, MANUFACTURES AND COMMERCE.

EDITED BY

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(Of the Department of Science and Agriculture, British Guiana,)

AND ISSUED BY

THE PERMANENT EXHIBITIONS COMMITTEE

UNDER THE DIRECTION OF

His Excellency SIR WALTER EGERTON, K.C.M.G.
(Chairman.)

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PREFACE.

THE Permanent Exhibitions Committee of British Guiana issued in 1909 an illustrated Handbook of the colony under the editorship of Mr. G. D. Bayley, of the British Guiana Civil Service.

This Handbook comprised a number of signed articles together with details relating to fees, regulations and statistics of the colony. The issue was rapidly exhausted, and it was then decided by the Committee to issue a larger edition of the Handbook in a more condensed form.

The 1909 Handbook has formed the basis for the present issue and full acknowledgment is made to the authors of the original articles, which have proved invaluable as the groundwork for the present edition. The general editorial and revision work has been done by Mr. Alleyne Leechman, of the Department of Science and Agriculture, under the supervision of the Book Committee of the Permanent Exhibitions Committee. Mr. F. A. Stockdale, until lately Honorary Secretary to the Committee, has rewritten the chapters on Climate and on the Flora and revised the Economic Section; the Editor has compiled the article on the Fauna; and the Deputy Chairman of the Committee has not only contributed the review of the Geology of the colony but has read all the proofs and assisted materially with recommendations suggested by his great experience of the colony.

Every effort has been made to condense as far as possible the general information relating to British Guiana, to set forward clearly the industries and the economical resources of the colony and their possibilities, and to issue the statistics in a form easy for reference.

The thanks of the Committee are due to Mr. Leechman for his editorial work, to the Hon. C. G. A. Wyatt and Mr. G. R. Garnett for assistance with the chapters on Commerce and Manufactures, and to Mr. F. A. Stockdale for advice given and assistance ably rendered in the revision of the Handbook.

The Committee is also indebted to Mr. J. Williams, of the Department of Science and Agriculture, for photographic work in connection with the illustrations, to the "Daily Chronicle" Office for the pictures taken by Mr. E. W. Savory, and to Messrs. Sprostons, Limited, for the loan of several photographs.

J. B. HARRISON,

FRANK FOWLER,

J. WOOD DAVIS,

Handbook Committee.

March, 1913.

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INTRODUCTION.

INTRODUCTION.

British Guiana is situated on the Northern Coast of the Eastern angle of South America, where it occupies an area approximately equal to that of Great Britain and lying roughly between the parallels 1° to 8° North and meridians 57° to 61° West. Its proximity to the equator insures a warm but not excessively hot climate, with a remarkably small range of temperature. In fact, on the coast-lands, which are swept all the year round by the cool North-East trade wind, the thermometer rarely touches 90° F. in the shade and seldom falls below 75° F. In the forest belt which extends in some places for a considerable distance from the coast, the damp heat is often oppressive, but as the country rises towards the interior the refreshing breeze is again felt and the park-like Savannahs are continually wind-swept. The sun, although vertical twice in the year, is hardly ever fierce enough to be dangerous, and sun-stroke is almost unknown. The blue sky flecked with cumulus cloud is a striking contrast to the "brazen heavens" of the East. It is "summer all the time" in British Guiana, even during the two wet seasons—January-February and May-June-July—which prevent monotony. Now that modern discoveries have solved the more pressing problems of tropical hygiene and sanitation, British Guiana can take its place as one of the loveliest countries and most delightful climates in the world. Malaria still exists, it is true, but infection can be avoided—it is a matter which depends entirely upon one's own strength of mind. Good health, as in England, is correlated with commonsense. Yellow fever (that ancient bug-bear), never endemic in the colony, has been unknown since 1884, and is nowadays shorn of all its terrors.

British Guiana is easily reached from England. The voyage by the Royal Mail Steamer occupies only a fortnight and involves a pleasant if somewhat un-

eventful passage across the Atlantic, a call at Barbados, and a change of boats at Trinidad. There is choice of other routes—by Direct boat ; *viâ* New York or Canada ; or by Dutch, French, or Danish packet. Once arrived, the visitor finds himself in Georgetown, a city of 57,500 inhabitants well laid out and spacious, furnished with electric light, electric cars, a modern ice plant, an excellent military band, a beautiful botanic garden, an up-to-date golf club, a very modern and complete race-course and the finest cricket ground in the Western Hemisphere.

The colony is the home of the cane sugar industry, some 70,000 acres of the fertile coast-lands being under cultivation with this staple crop which, with its by-products rum, molasses and molascuit, constitutes almost 75% of the total exports. "Demerara crystals" are world-renowned. Rice, the back-bone of the peasantry in many tropical countries, occupies about 36,000 acres. The development of this industry has been very rapid in recent years, thanks to the East Indian settlers. The cereal was first exported from British Guiana in 1902, when five tons were shipped ; at the present time well over 5,500 tons, to the value of some £65,000, are exported annually. Coconuts, limes, cacao, and coffee also figure amongst the agricultural products of the colony and seem likely to take a more important place in the near future.

A large area of the country has been proved to be eminently suited to the growth of Para rubber, and considerable progress has already been made along this line of development. It is estimated, also, that about 10,000 square miles of the forest lands are readily accessible and commercially workable for timber, and in this direction much enterprise is being shown. Greenheart long ago won a distinguished place among first class woods, and "British Guiana mahogany" (or crabwood), mora, wallaba and numerous other species are steadily finding increased appreciation. Another forest product in which the colony stands pre-eminent is balata—a native gum

resembling gutta-percha—which finds many applications in the manufacture of belting and for other industrial purposes.

Gold is among the principal articles of export ; and although the industry is not at present so flourishing as formerly, it is still of importance. Some deep mines exist, and the dredging on the Conawaruk river has proved very successful. Placer mining, however, conducted largely by pork-knockers (independent blacks who work the claims) is the mainstay of the business. Diamonds occur in several localities, chiefly on the Mazaruni river. Occasionally a large one—12 carats or so—is discovered, but as a rule they run small yet of an excellent quality.

If the visitor confines himself to the coast-lands, he will leave with a very inadequate idea of the fine scenery to be found within the boundaries of British Guiana. Railways and the public road make journeys quick and easy along the coast ; towards the interior travel must be by boat. A subsidised service of steamers runs to many points up the great rivers and thence launches and bateaux convey the traveller comfortably to scenery which can compare with that of any part of the world. The Kaieteur Fall on the Potaro river, with its drop of 740 feet, sheer and unbroken, is perhaps the chief natural wonder of the colony, and it is now quite accessible. The round trip from Georgetown is done regularly in 10 days, and in the most comfortable of circumstances. Rest-houses have been provided at every halting place from the hotel at Rockstone on the Essequibo, where the first night out is spent. Roraima, the sacred mountain of the Indians on the Brazilian border, is still beyond the range of tourists and is visited only by explorers and orchid hunters ; its neighbourhood is the home of the glorious *Cattleya Lawrenceana* discovered by Siedel in 1884.

Very pleasant outings on the small scale can be made from Suddie, on the Essequibo coast, to the Tapacooma, Capoey and Ituribisi lakes ; to Sproston's timber grants between Wismar and Rockstone—where,

by the bye, is one of the prettiest little woodland scenes in the whole colony ; to the savannah land on the Berbice river ; and to Bonsall and Orealla on the Courantyne river. None of these should occupy more than a week, and all would be well worth doing.

Ample accommodation exists in Georgetown for tourists. There are some big hotels and quite a number of private boarding-houses, at any of which the visitor can find comfortable quarters. A new hotel on more luxurious lines and situated on the Sea Wall has been planned and seems likely to materialize very shortly. In the last few years the number of tourists calling at Georgetown has very largely increased, and intending visitors can be confidently referred to the favourable opinions expressed by these : their experience forms the best advertisement possible for British Guiana.

I.—THE COUNTRY.
HISTORY.

HISTORY.

Guiana was the Indian name for the country between the two rivers Orinoco and Amazon, and was probably derived from the root word "wina" = "water" or "river." The coast was first seen by Columbus in 1498 but no Spanish voyager appears to have landed on the part now known as British Guiana. The inhabitants were numerous and consisted of three tribes, Caribs, Arrawaks and Warows, the first two being continually at war with each other. The Caribs were noted cannibals and fighting men, and did not hesitate to raid the European settlements in the West Indian Islands in search of their favourite food—human flesh. It is probable that these tribes had driven out and taken the place of an earlier migration, probably from Mexico or Yucatan.

THE FIRST SETTLEMENT.

In the latter half of the sixteenth century the story of El Dorado incited many adventurers to explore the country, and in 1595 Sir Walter Raleigh went up the Orinoco in quest of the Gilded King and his wonderful city. English, Dutch and French traders followed, and it is recorded that the Dutch attempted a settlement in the Pomeroon as early as 1580. There is a Spanish account of an attack on a small fort on the river Courantyne in 1613. This seems to be the pioneer settlement in what is now British Guiana. Whether Fort Kyk-over-al on the Mazaruni river was then in existence is doubtful, but it may be safely put down as existing in 1620. At first it was nothing more than a trading station where European tools and trinkets were exchanged for hammocks, cotton, annatto, tobacco and forest products such as letter-wood and balsam copaiba; ultimately it developed into the centre of the colony of Essequibo.

THE DUTCH PERIOD.

In 1621 the Dutch West India Company received a charter by which it became possessed of Essequibo. Three years later a commander was sent to Fort Kyk-over-al, and at the same time a few settlers went to the Berbice river in the interest of the mercantile house of van Peere. In 1650 the Governor of Barbados founded a British colony on the Surinam river, and in 1657 a small settlement was made on the Pomeroon. In 1666, war having broken out between England and the Netherlands, both Kyk-over-al and Pomeroon were captured by an expedition from Barbados. In 1667 Surinam was exchanged for what is now New York and most of the Pomeroon settlers went to what is now Dutch Guiana. Those were the days of raiders. A second settlement in the Pomeroon was destroyed by French corsairs in 1689, in 1708 Kyk-over-al submitted to pay a ransom to Captain Ferry, and in 1712 Berbice was held by Jacques Cassard as security for a bill of exchange.

STORM VAN GRAVESANDE.

Real colonization did not commence until the introduction of slaves in the early years of the eighteenth century. In 1740, under Governor Storm van Gravesande, Essequibo was thrown open to all nations, with free land and ten years freedom from taxes, and settlers began to arrive in considerable numbers. The seat of Government was removed to Fort Island near the mouth of the Essequibo; a general move was made to the fertile coast-lands; and permission was given to settle on the river Demerara.

Berbice, though far behind Essequibo, had become a real colony with a population of 346 whites and about 4,000 slaves, when in 1763 a rising of the latter drove their masters from every plantation to take refuge at the mouth of the river. The revolt was not put down till nearly a year afterwards.

THE FIRST TOWNS.

No real town existed in either colony. There were some houses near Fort Nassau in Berbice and Fort Zeelandia in Essequibo, while in Demerara the Government officers were on a small island called Borsselen about fifteen miles up the river. In 1781 the colonies were captured by the British, who occupied them for ten months and chose a site for a new town near the mouth of the Demerara. The French, acting as allies of the Netherlands, then ousted the English: and in 1784 the Dutch resumed possession and called the new town Stabroek. It became Georgetown in 1812. New Amsterdam in Berbice was laid out about ten years later.

POLITICAL TROUBLES.

The capture of the Colonies by the British and then by the French allies of the Netherlands upset the easy-going Dutch authorities and resulted in a political crisis. The West India Company wanted to introduce changes which the colonists refused to allow. For two or three years no taxes could be collected; petitions against the Company were sent to the States-General and in the end the renewal of its charter was refused. In 1791 Demerara and Essequibo came under State control and a Plan of Redress, the basis of the present Constitution, was formulated.

The troubles in Europe that followed the French revolution were naturally reflected in the colonies. The Dutch and the British became allies; but the Court of Policy in Demerara refusing to recognize this, nine English vessels arrived on the 27th of May, 1796, with a demand that the colony be placed under the protection of the British Government. Thus the two colonies of Demerara-Essequibo and Berbice became British for the first time. Restored to the Batavian Republic in 1802, they were again captured ten months afterwards and finally transferred to Great Britain at the Great Peace of 1814-15 for certain monetary considerations to the tune of about three millions sterling.

DEVELOPMENT UNDER THE BRITISH.

The arrival of the British in 1796 was followed by a remarkable development of the colonies. Cotton, coffee and sugar were the main products and high prices were realised. Slaves were imported to the number of about five thousand a year and everything looked bright when the abolition of the slave trade in 1807 checked further development and caused everyone to cry out for labour. Coffee and cotton gradually disappeared and sugar took their place. Labour was always inadequate and gave rise to suggestions for immigration. A great rising of slaves took place in 1823 on the East Coast of Demerara. Suddenly Emancipation became an impending fact. A system of Apprenticeship was established for four years and in 1838 the negroes became their own masters.

THE ABOLITION OF SLAVERY.

With Emancipation came ruin to many of the planters. The freed slaves left some of the districts altogether; many with their savings—accumulated during slavery times and under the Apprenticeship system—bought up a great number of plantations, which ultimately became the villages of to-day. Exports decreased to about a fourth of their previous value; and when a little later Free Trade in sugar was adopted by England, British Guiana seemed ruined beyond hope of redemption. Gradually however the Immigration system supplied the much needed labour, and the introduction of the vacuum pan and other improved processes of manufacture so raised the quality of the staple product that Demerara sugar became world-famous. Economy in every branch of growth and of manufacture was increasingly studied.

THE BRUSSELS CONVENTION.

The chief danger to threaten the industry of late years has been the Continental Bounty system which encouraged the sale of sugar in England at a price much lower than the cost of production. This handicap

was removed in 1903, thanks to Mr. Joseph Chamberlain and the Brussels Convention. The general result of East Indian Immigration has been very good, and of late years the colony has enjoyed a fair measure of prosperity. The discovery of gold in paying quantities was made in 1880, and since that time the precious metal has furnished a considerable portion of the colony's revenue. Diamonds, too, have been found in considerable numbers and quite recently rice-growing for export has undergone a remarkable development. Politically the settlement of the Venezuelan boundary question in 1899, and the demarcation of the Brazilian boundary in 1906, under the arbitration of the King of Italy, have had a good effect. The tendency to closer trade relations with Canada—already the Colony's chief market for sugar—promises much good. That British Guiana contains great possibilities is a truism; the full development of those possibilities has yet to be recorded.

I.—THE COUNTRY.
GEOGRAPHY.

GEOGRAPHY.

British Guiana lies on the North-east coast of the continent of South America, and occupies an area as large as Great Britain. It has a coast-line of about 270 miles extending almost from the eastern mouth of the river Orinoco to the river Courantyne, and is bounded on the North by the Atlantic Ocean, on the South and South-west by Brazil, on the East by Dutch Guiana, and on the North-west by Venezuela. It varies in depth (from the ocean southwards) from 540 miles on the western to 300 miles on the eastern side. The area—now that the boundaries with Venezuela and Brazil have been settled and demarcated—is calculated at 90,277 square miles.

The colony may be divided broadly into three belts. The northern one is a low-lying, flat and swampy strip of marine alluvium, known as the coastal region. This rises gradually from the seaboard and extends inland for a distance varying from 10 to 40 miles. It is succeeded by a broader and slightly elevated tract of country composed of sandy and clayey, practically sedentary, soils. This belt is chiefly undulating land and is traversed in places by sand-dunes rising from 50-180 feet above sea-level. The more elevated portion lies to the southward of the above mentioned regions. It rises gradually to the south-west between the river valleys, which are in many parts swampy, and contains three principal mountain ranges, several irregularly distributed smaller ranges and in the southern and eastern parts many isolated hills and mountains. The eastern portion is almost entirely forest-clad, but on the south-western side there is an extensive area of flat grass-clad savannah elevated about 300 feet above sea-level.

The country is traversed by several large rivers, which with their numerous tributaries and branch streams form a vast network of waterways. All the

larger rivers of the colony are impeded above the tide-way by numerous rapids, cataracts, and falls, which render the navigation of the upper reaches difficult.

In its scenery British Guiana affords very great contrasts. The tourist who visits the colony and confines himself to the flat and settled coast-lands leaves with the impression that British Guiana is merely a mud-flat not entirely above sea-level; but the traveler who penetrates any considerable distance into the vast interior must be greatly impressed by the tropical vegetation of lofty trees, tangled lianas and graceful palms, the hilly nature of the country, the many great ranges and curiously shaped mountains, the elevated undulating plateaus, the extensive savannahs, and the multitude of cataracts and water-falls of surpassing beauty which occur on the upper parts of the larger rivers and their tributaries.

THE COAST-LANDS.

The flat and comparatively narrow plain or belt which forms the coast-lands is to a considerable extent slightly below the level of ordinary spring tides which flood the unprotected parts. Inland it may rise to about 10 or 12 feet above high water mark and in depth it varies from 10 miles on the West to 40 miles along the Berbice and Courantyne rivers. Its margin is protected from sea and river by a dense growth of Mangrove (*Rhizophora Mangle*) and Courida (*Avicennia nitida*). Behind this growth are flat grassy savannahs mostly inundated during the rainy season.

It is along the outermost part of the coast-lands from the Pomeroon to the Courantyne that almost the whole of the population and cultivation of the colony is concentrated. Situated on this comparatively narrow strip are the two towns of the colony, nearly all the villages, and with but few exceptions all the sugar estates, roads and railways. Georgetown, the chief port and capital of British Guiana, lies at the mouth of the Demerara river on the east bank; New Amsterdam, the only other town, is situated 70 miles eastward some 5 miles up the east bank of the Berbice

river. A standard gauge railway connects the two towns—a steam-ferry running from the terminus at Rosignol on the west bank of the Berbice river to New Amsterdam—and a short line constructed to the metre gauge runs from Vreed-en-Hoop, on the west bank of the Demerara river opposite Georgetown, for 15 miles along the west coast.

The drainage—naturally a most important point on the coast-lands—is inter-tidal *i.e.* by the aid of sluices or kokers the water is discharged from the drainage canals during low tide and is kept out at high water, but in many cases during heavy weather steam-pumps are also employed for this purpose.

THE SAND AND CLAY BELT.

This lies behind the coast-lands and extends right across the breadth of the colony. Along the sloping front it is elevated about 50 feet above sea-level and as it extends inland it rises in some places to hills of 180 to 200 feet in height. Here and there it is traversed by sand dunes. In width it varies considerably; in the North West district it ends at a distance of 40 or 50 miles from the ocean. The greater part of this belt is clothed with high forest containing a great variety of useful and valuable timber.

THE MOUNTAIN REGION.

Behind the two belts just mentioned lies a mountainous region consisting of undulating plateaus rising successively at varying distances one after another in bold sandstone escarpments from 1,200 to 2,000 feet high and cut in places into deep gorges of which the Kaieteur is pre-eminent for its size and beauty. The culminating point is reached in the flat topped mountains Roraima and Kukenam which rise 5,000 feet above the surrounding country and 8,600 feet above the sea-level.

THE ESSEQUIBO RIVER.

All the rivers flow into the Atlantic Ocean. The largest of them is the *Essequibo*, with its

tributaries the Mazaruni, Cuyuni, Potaro, Siparuni and Rupununi. Its total length is something over 600 miles, and it drains considerably more than half of the total area of the colony. It is joined at Bartica by the Mazaruni which is itself joined at Kartabo, 5 miles above Bartica, by the Cuyuni river. Kyk-over-al, an island off Kartabo Point, was the first important settlement made by the Dutch, and still retains traces of the old buildings. At Bartica the stream is about $3\frac{1}{2}$ miles across, while at its mouth the estuary of the Essequibo has a width of fourteen miles and contains three great islands, the largest about 12 miles long. Ocean-going boats can proceed for some little distance above Bartica. Fort Island, some miles up the river, was once the seat of government of the colony. On it there is a large Dutch church—formerly used as the Court of Policy Hall—and the remains of an old fort. Above the first series of rapids on the Essequibo and opposite the lower end of Gluck Island, a narrow-gauge railway runs from Rockstone to Wismar on the Demerara river and thus affords easy access to Georgetown from the gold fields and balata districts situated in the upper regions of the Essequibo system. A road 65 miles long leads from Kartabo Point, at the junction of the Cuyuni and Mazaruni rivers, to the Peters' Mine on the right bank of the Puruni river; which is there crossed by a bridge over 200 feet in length.

THE COURANTYNE RIVER.

The *Courantyne river* ranks second in size amongst the rivers of the colony, of which its left bank forms the boundary. East Indians have taken kindly to the Courantyne coast and small farms extend at intervals along the banks as far as Orealla, some 52 miles from the river mouth. At that point sand hills about 60 feet high occur and continue southwards as far as Epera, about 35 miles along the bank above Orealla. Both at Orealla and Epera there are Indian reserves and Missions. Beyond Epera the Courantyne has been recently explored by the Forestry Officer (Mr. C. Wilgress Anderson, I.S.O.) and has proved quite

uninhabited to its highest reaches. In the season, balata bleeders' boats go as far up as the mouth of the New River.

THE BERBICE RIVER.

At its mouth the *Berbice river* is divided into two channels by Crab Island, the width there being about three miles from bank to bank. The stream is navigable for large craft for a longer distance than any of the other rivers of the colony; the steamer terminus being some 88 miles from the sea. Beyond this point, in the dry season, the river becomes very shallow and much obstructed by sand-banks, but during the rains its course is uninterrupted as far up as Marlissa, about 165 miles from the mouth.

Commercially the Berbice river ranks second in importance amongst the rivers of the colony, its depth of water allowing large vessels to call at New Amsterdam, the port and chief town of the county of Berbice. Opposite New Amsterdam, on the western bank of the river, there is the railway terminus of Rosignol and the large sugar plantation of Blairmont, beyond which a public road extends for four miles up the river. Along the eastern bank another road runs for 10 miles above New Amsterdam. The banks for over five miles above the town are occupied by sugar plantations. There is also a solitary estate at Mara about 30 miles up the river. With these exceptions the low-lying banks of the lower Berbice river, clothed with stunted trees and bordered along their muddy slopes by *Mucca-mucca* (*Montrichardia* spp.) and bush, continue unbroken on both sides for 46 miles to Bartica on the eastern bank of the river. There the land rises about 15 feet above the water and the forest gives way to an open grass-clad stretch of savannah which commences at this point and extends nearly as far as the ruins of the old Dutch fort and town of Nassau (the former capital of Berbice), about four miles above Bartica. At the Marlissa rapids the surface of some of the larger granite rocks is carved with picture writings done in ancient days and resem-

bling those at Timheri on the Courantyne and at Waraputa on the Essequibo river.

The *Canje creek*, which flows into the Berbice river just below New Amsterdam, is narrow but remarkably deep and is navigable for 51 miles from its mouth. The forests through which it flows in its upper reaches are famous for their balata trees (*Mimusops globosa*) and in former days the Canje creek was the home of the balata industry. A good deal of bleeding is still done in the district.

THE DEMERARA RIVER.

Although commercially the most important and best known of all the rivers of the colony yet compared with some of them the *Demerara* is but a small stream. It has a length of only 200 miles, but the depth of water on the bar is sufficient to allow of large vessels crossing with ease and security. Consequently, Georgetown, the capital and principal port of British Guiana, has been established on its eastern bank at its mouth, where the river has a width of about three-quarters of a mile and furnishes a safe harbour.

The terminus of the colonial steamers—which ascend the Demerara river daily—is at Wismar, about 65 miles from the sea; but sailing vessels can be towed for 15 miles further up to load timber, large supplies of which have for many years been obtained and exported from the valuable forest country through which the river flows. From Wismar a railway runs across to Rockstone on the Essequibo river, and small launches run regularly twice a week to the foot of the Malalli rapids on the Demerara about 104 miles from Georgetown, where the influence of the tide ends.

On the lower Demerara river, for a distance of nearly 20 miles from Georgetown, the low and flat lands on both side of the river are extensively cultivated. There are several sugar plantations on both banks: Pln. Diamond on the right bank about eight miles from Georgetown being the largest in the colony.

Public roads extend from Georgetown for distances of nine miles along the eastern and 13 miles on the western bank.

Borsselen, or "No. 2 Island," situated about 20 miles from the mouth, is of interest, as on it, in 1753, the first capital of Demerara was laid out.

THE POMEROON RIVER.

The *Pomeroon river*, drains the portion of the colony lying between the Essequibo river and the upper Waini River. The low flat alluvial lands which form the banks of the lower river are among the most fertile in the colony, and a succession of well-drained and flourishing farms now extends as far as Macassema, about 34 miles from the Atlantic. The Pomeroon is navigable for steamers up to and beyond Macassema, some miles beyond which the tidal influence ends.

THE WAINI RIVER.

Throughout its whole course the *Waini* flows entirely through forest-clad country. It has a width of about two miles at its mouth and is navigable for steamers for 53 miles up to the junction of the Barama river. The Mora passage—about seven miles in length—forms a deep and navigable waterway on the southern side of the Waini river, three miles from its mouth, through which steamers can pass into the Barima river at Morawhanna.

The banks of the Barama river are flat and swampy and clothed with forest. Small launches are run during the rainy season, as far as the Towakaima falls, whence the Barima-Barama road passes through the Mazawini and Takutu gold-fields to Arakaka on the Barima river, a distance of 29 miles.

THE BARIMA RIVER.

The *Barima river* gives access to the principal gold-bearing areas of the North West District. About 52 miles from its mouth is Morawhanna, which, as just explained, can be reached from the Waini river by the Mora passage. Opposite Morawhanna resides the Commissioner of the North West District.

The steamer terminus is at Mount Everard, some 42 miles above Morawhanna, but the river is navigable for the greater part of the year for another 116 miles. Launches ascend the river regularly from Mount

Everard to Arakaka, the centre of the gold-bearing district. A Warden is stationed at this settlement which is of considerable size and importance. Smaller gold-digging settlements are to be found on the right bank of the Barima river, the furthest being "Jimbo landing" about 150 miles from Morawhanna.

I.—THE COUNTRY.
GEOLOGY.

GENERAL GEOLOGY.

THE COAST-LANDS.

The coast-lands of British Guiana form a plain of marine alluvium, interrupted in a few places in the North West of the colony by low hills of more or less decomposed country rock, as for instance, the Aruka, Santa Rosa and Macaseema hills. The alluvial plain is traversed by lines of sand-dunes which form low ranges seldom exceeding thirty to forty feet in height. The sands of these hills are of white quartz, and the grains, in the majority of cases, are well rounded, showing the wind-blown origin of the dunes. The alluvial deposits are of considerable but unknown thickness. They rest upon beds of pipe-clay or of lateritic earths and it is a matter of great difficulty to decide whether the borings for underground waters, which have from time to time been made in various parts of the coast-lands, have been wholly in the alluvia or have penetrated through these deposits into the underlying residuary clays. In places the alluvial deposits have been proved for depths of over two hundred feet, and it is possible that in some districts their thickness far exceeds this. The borings show that the alluvial deposits consist of beds of more or less indurated marine muds and sands which have been laid down so as to form beds of clay, of mixed clay and very fine silicious sand, locally known as "caddy," and of silicious sands varying much in texture—some beds consisting of sand of extremely fine texture, others being of coarser grain, while some approach in character grits or fine gravels. Certain of the beds contain considerable quantities of decomposing vegetable debris, and these beds when drilled into during deep well-sinking operations, have in some cases given off inflammable mixtures of gases containing marsh gas in considerable quantities accompanied by small quantities of petroleum, a decomposition-product of the organic matters. The geological age of these beds is uncertain ;

the lower parts may be of late Tertiary or of Pleistocene age, while those now bordering the coast-line are undoubtedly recent. The sand-beds of these deposits where exposed in the cultivated parts of the coast-land, are known as "sand-reefs." These form in places oval patches of land raised a few feet above the general level of the surrounding argillaceous soils, and in others give rise to long narrow ridges somewhat raised above the general level of the land which they traverse. Their mode of occurrence indicates that they are purely local modifications of the alluvial deposits—sands separated from the mass of the marine silt by the action of local currents and of the waves—and thus the sand-beds form more or less lenticular masses occupying, as a rule, no great area, whilst their distribution is very similar to that of the beds of sand which are now forming near the shores on the shallows of the ocean which bands the colony.

A STABLE AREA.

British Guiana occupies one of the most stable areas of the earth's surface, and one which has been very slowly rising through long ages. This slow movement has given rise to the low rapids which usually mark the termination of the tide-way in the larger rivers, and possibly has altered the contour of the part of the continent on which the colony is situated so as to change the main lines of drainage, and thus to make the Guiana rivers relatively small streams traversing the deeper parts of the valleys and water-courses eroded by their predecessors in earlier periods. During a stage in this slow upheaval the low hills already mentioned as occurring in a few places in the alluvial coast-land were in turn rocks and small islands in the shallowing ocean which then surrounded them, as now they are surrounded by an apparently boundless expanse of forest.

A remarkable feature in parts of the alluvial coast-land is the occurrence of extensive beds of peat. This is locally known as "pegass," and consists of the more or less altered remains of ferns, mosses,

sedges and other marsh-loving plants. It resembles in its general character the upper layers of vegetable matter which are found in the peat-bogs of temperate climates. As far as observation goes, it is never as compact as is true peat. This is probably due to the deposits of it being seldom more than from two to four feet in thickness, although in places they may be as much as 11 or 12 feet.

As pointed out by Sir Charles Lyell in the earlier editions of his "Principles of Geology," a large portion of the sand and clay of the alluvial deposits has been brought by currents from the Amazon river; the burden brought by present rivers of the colony from the higher districts through which they flow having been, during recent periods, a very subordinate factor in the accumulation of this widespread formation; although perhaps in earlier times, before the land had risen to its present level, the river-borne silt contributed more largely to the mass than it does at present.

THE RESIDUARY DEPOSITS.

The alluvial strata extend to distances varying from five to, in places, as much as thirty-five miles from the coast-line, and rest upon beds described by C. B. Brown as the "sand and clay deposits." This widespread formation may be seen for many miles along the courses of the larger rivers. The so-called valley-gravels and the sand and clay beds consist mainly of arenaceous, argillaceous, and lateritic earths arising from the decomposition and detrition of granite and gneiss, of quartz-porphry and various porphyrites, and of hornblendic and augitic rocks. The clays and earths vary from white and cream-coloured to dark-red or chocolate-coloured, according as they have been derived from acidic, non-ferruginous rocks or from basic, more or less ferruginous ones. They are covered over wide areas by varying thicknesses of white, cream-coloured, yellow, or ochreous loams and sands; the sands characterising the districts where the leaching and elutriation of the decomposed rocks by the slightly acidic soil-waters of the tropical forests and by

the rain have been more intense. In places the sandy upper layers have been re-arranged by the action of flowing waters or of the wind, the sands and gravelly particles have been collected in hollows, or wind-blown dunes, the layers of which not unfrequently show false bedding. In the neighbourhood of masses of the more basic rocks the gravelly sands are in places cemented together by a limonitic cement, and form ferruginous sandstones and conglomerates. Where the original rock, which decomposed *in situ*, consisted of gneiss or of schist, with alternating layers of silicious, feldspathic and ferro-magnesian minerals, the variously tinged and coloured layers of sands, sandy clays, and more or less ferruginous earthy clays strikingly simulate stratified deposits showing current bedding. The lateritic earths formed by the decomposition of the more ferruginous rocks are frequently covered by ironstone, and this attains locally a considerable thickness. The residual deposits cover and hide the true country over vast areas of the lower-lying parts of the colony, and form the characteristic soils and sub-soils of the forest regions.

THE SAND HILLS.

The residuary deposits are not unfrequently traversed by long ranges of sand-dunes, giving rise to hills which as a rule do not exceed one hundred or one hundred and twenty feet in height, but in places, as in the case of the range traversed by the Demerara-Essequibo Railway, attain a height of somewhat over two hundred feet. The sand of which the upper parts of the hills consist is glistening white quartz, the grains of which are usually uniform in size over relatively large areas, the majority being well-rounded, thus indicating the wind-blown origin of the dunes.

The residuary deposits cover the plains of the coast-lands and the country along the great river valleys and on many of the hills and mountains. The heavy, at times torrential, tropical rains have carved out of them in places deep ravines and valleys :

and the gravels, sands and silts derived from the eroded material have been laid down in the wider valleys and along the courses of parts of the rivers as fluviatile loams, gravels and sands. It is in these residuary deposits and in the gravels and earths derived from them that the readily available mineral wealth of British Guiana occurs.

A traveller journeying along the rivers, especially during the dry seasons of the year, will notice at the numerous rapids and low cataracts which interrupt his voyages, the rocks underlying the prevailing coverings. The rock usually exposed is gneiss, in varieties from massive, almost granitic in texture, to finely laminated, which is in places intersected by belts of granite, or traversed by dykes of basic rocks, often diabase. Where the dykes are numerous or extensive the neighbouring districts are traversed by ranges of hills or the general plain is dotted with hills the surfaces of which are covered by ironstone-gravel.

THE KAIETEURIAN.

Very large areas of the interior of the colony are occupied by a thick formation of sandstones, and conglomerates. These sandstones and conglomerates with their interstratified thin beds of grits and shale and their intrusive dykes and sills of diabase are exceptionally well exposed along the valley of the Kaieteur, at the Kaieteur fall and on the Kaieteur plateau. The Commissioner of Lands and Mines, Mr. Frank Fowler, F.G.S., and I consider that it will be convenient to name this vast formation after the celebrated fall which, with its valley and plateau, is the most readily accessible place of those where the structure of this formation is exposed and to term it the "Kaieteurian series" of the Guianas.

THE ABSENCE OF FOSSILS.

The Kaieteurian constitutes the greater portion of the Pacaraima mountains, and spreads westwardly into Venezuela. Wherever it occurs it appears to be unfossiliferous, and thus we have no palæontological evidence to indicate the geological period at which it was deposited.

The only evidence available with regard to the geological period of its formation is that wherever the base of the Kaieteurian has been seen it occupies an analogous position to the Torridon sandstones of the Scotch Highlands, and to the Athabasca sandstones of the Keweenaw series in Canada to which its sandstones have a close resemblance in constitution. It lies invariably on the presumably Archean or Pre-Cambrian rocks of the colony, and its constituents, as far as they have been examined, show no signs of having, even in part, been derived from later rocks.

The Kaieteurian spreads eastwardly through the colony, crosses the Essequibo River in a low narrow belt at Comuti Mountain, gives rise to the Maccari Mountain in Demerara, and, crossing the Berbice River near Marlissa Rapids, is seen forming a low mountain range at Itabru near that river. It passes into Dutch Guiana across the Courantyne river near its union with the Cabelebo river.

THICKNESS OF THE KAIETEURIAN.

The Kaieteurian consists of beds of coarse conglomerate, red and white sandstones of very varying texture, with in places strata of red shale. Hills and mountains consisting of rather fine-grained gabbro occur in the Kaieteurian, the strata of which abut against them. The gabbro shows signs of metamorphism, in places being granulitic in structure and in others being changed to a considerable extent, either by the development from its augite of a dark-brown secondary biotite, or by the pyroxene being altered from an almost colourless mineral to a brown-coloured strongly dichroic one. The gabbro is thus distinguished from the later diabase which never shows signs of dynamic alteration.

Messrs. Brown and Sawkins estimated the total thickness of the Kaieteurian—on the assumption that it is traversed by three layers of “greenstone”—at about three thousand feet. As, however, it is probable that some of the masses of the diabase, as for instance that at Roraima, occur as laccolites, and during their

intrusion have elevated great tracts of the sandstone country, probably the formation does not now anywhere exceed in thickness that shown at Roraima—about two thousand feet.

As a rule the Kaieteurian lies nearly horizontally, dipping somewhat to the north, and few faults are seen in it although in places near where diabase has intruded into it there are well-marked local disturbances in its dip. Many of the beds of sandstone of finer texture show well-marked current-bedding.

THE DIABASE INTRUSIONS.

In common with the basal igneous rock the Kaieteurian is intersected and traversed by numerous dykes of diabase. The diabase is of later origin than any of the rocks of British Guiana with the exception of its sedentary coverings and its fluvio-marine deposits. The intrusions of diabase occur in belts, generally stretching across the colony in a north-westerly and south-easterly direction. They vary from narrow dykes, some being not more than from two to three feet across, which are only exposed in the courses of the rivers during very dry seasons, to hills and to mountain ranges, some of which—for example, the Eagle mountain in the Mahdia district—exceed in height two thousand feet. The tops and sides of the hills and mountains, except where they have suffered great denudation, are covered with ironstone-gravel, concretionary ironstone, and laterite, while the lower parts of the districts in which diabase forms the country are covered by layers of lateritic earths, frequently over one hundred feet in depth. These earths in places are interspersed with nests of secondary quartz, or traversed by veins and stringers of quartz, or less of ten by lenticular sheets of secondary quartz which closely resemble, when cut through during mining operations, true quartz-reefs. The quartz in all these forms is not infrequently auriferous; the metal being dispersed through it in a very irregular manner, especially in the larger lenticular masses, which while generally nearly, or even entirely, barren

of gold are "bonanzas" in places carrying at rates from a few to (in some specially rich spots) several hundreds of ounces of the precious metal to the ton of the rock. Unfortunately these bonanzas have been few and far between; but there is no reason for assuming that others may not be found in many places in the enormous areas of the laterite which up to the present have not been prospected. Gold also occurs as paint gold, as gold dust, and as nuggets of very varying sizes of which the largest yet found weighed 333 ozs.

GRANITE.

True granite with much orthoclase and with both white and black mica is not an abundant rock in British Guiana. The largest development of it is the great mass extending from Makauria Point on the Essequibo to the south-end of Karia Island on the Mazaruni, and to the foot of Akaio Rapid on the Cuyuni. Similar granites, but of more gneissose structure, occur at Granite Island at Canayaballi on the Waini river on the divide between the Barama and Waini rivers, and on the Pomeroon river. These granites are the youngest of the basal igneous rocks of the colony. The granite always shows some signs of mechanical stress and of incipient metamorphism, although these are but little marked in the Essequibo-Cuyuni-Mazaruni mass.

Belts of granite with relatively abundant plagioclase-feldspar, and with only black mica, which may be in part replaced by hornblende, are of fairly common occurrence in the colony, traversing the porphyry and felsite rocks, the various schists, and the gneiss. These rocks are granitite. As a rule the effects of dynamic metamorphism are the more marked in granitites than in the granites, and many of the belts of granitite traversing the country are gneissose.

From the masses of granite and from the granitite dykes, veins and tongues of aplite, of muscovite-granite and of micro-granite penetrate and intersect the adjacent rocks. The belts of granitoidal rocks are more resist-

ant to weathering than are the gneisses, porphyries and schists, and thus not infrequently give rise to ranges of low hills or to isolated rounded low hills. Where rivers have cut their courses across belts of granite or of granitite, their occurrence is usually marked by rapids or low cataracts. In addition to granitite, hornblende-granitite or quartz-diorite is of frequent occurrence. In places augite is the principal ferro-magnesian mineral present, the rock being an augite-granitite; in others, though rarely, hornblende-granitite passes into syenite; while true diorite is a rock of infrequent occurrence in the colony.

QUARTZ-PORPHYRIES, PORPHYRITES, FELSITES, PORPHYROIDS,
AND SERICITE-SCHISTS.

Large areas of the colony are occupied by rocks belonging to this group; massive members of it gradually and almost imperceptibly pass into foliated or schistose ones, so that in many places it is not possible to demarcate one variety from the other. The foliation is due to dynamic metamorphism. As a general rule, but especially when they are schistose, these rocks yield comparatively easily to weathering agencies, and the lower parts of the colony occupied by them consist of somewhat undulating land or plains. The schistose members of the group in places have a fissile or a slaty structure and weather into upstanding slabs. The massive varieties are often of great hardness and tenacity, and where belts of rock of this description are crossed by the courses of the rivers, rapids and low cataracts occur; and in these the rocks are angular and rugged—in very marked contrast to the rounded masses which characterise rapids and cataracts caused by the rivers crossing belts of granite or bands of granitoidal gneiss. In the elevated parts of the colony in which rocks of this group are found the surface of the country is often extremely rough, and consists of rugged ridges and hills, with tabular masses and in places with jagged pinnacles, of rocks protruding from the earth; these parts form a rough grass-covered country

interspersed with patches of forest. Over the surface of the country patches of blocks of the country rock are often found, as are others of angular blocks of quartz, and of pebbles derived from the veins of quartz which are common in the altered members of the group. In some parts the quartz-porphyry or the felsite has been completely altered and converted into quartz-rock, this in places occurring as bands of quartz schist. The finer-grained members of these silicified rocks are locally termed "jasper." The most commonly occurring rocks of this series are greyish-green in colour, but their colours vary from various shades of yellow to others of grey, green, brown and black, while some are of shades of red ranging from pale dull red or brownish red to very bright red.

The more basic members of this group of rocks are in places much metamorphosed, and are there chloritic or actinolitic rocks, which are frequently of complex composition and of confused structure. These rocks are usually of various shades of green, and generally have a dull earthy appearance. In places chloritic rocks occur which are of very fine texture and have a markedly fissile structure; these probably are metamorphosed sedimentary rocks or have been volcanic tuffs.

Closely connected with the rocks of this group are felsitic mudstones and tuffs, which form in places layers in or below the basal beds of the Kaieteurian, but these are of very subordinate importance in the lower lying parts of the colony.

Allied to the last-described rocks are some of those which form the basal rocks of the colony; it is, in fact, possible that the quartz-porphyries and their allies are properly parts of the formation now to be described and are thus only a feature in the earliest geological history of the colony. Investigations lead, however, to the opinion that the porphyries and their allies form a distinct phase in its earliest geological history, and represent a series of acidic lavas, both surface and deep-seated, the outflow of which over wide areas of the Guianas character-

ized a period subsequent to the formation of the basal gneiss ; outbursts, which the occurrence in places of tuffs and felsitic muds indicates, may not have terminated at the commencement of the Kaieteurian period. They may be equivalent to the Keewatin beds of the Archean series of Canada.

THE GNEISSOSE ROCKS.

The basal gneisses are older than the porphyries and the schists derived from them ; although in places schists belonging to the porphyry series appear to be intercalated with some of the more highly foliated members of the gneiss.

More or less altered diabase-gabbros, almost massive quartz-diorites, epidiorites and amphibolites, and hornblende schists are found in intimate relationship with the acidic rocks which make up the mass of the fundamental gneiss. These represent the basic rocks of the complex which gave rise by metamorphism to the fundamental gneiss of the Guiana region. They are the most important source of gold in the districts where the gneiss occurs.

The gneiss varies in a gradual, and often in an almost imperceptible, manner, for massive, almost granitoidal, rocks offering little evidence of foliation—not noticeable in hand specimens, although more or less readily distinguishable in the field where the rocks are seen *en masse*—through gneissoid ones showing roughly-marked apparent bedding, caused by some parallelism in the arrangement of their component minerals, to gneiss with well-marked foliation.

The constituents of the gneiss are arranged in narrow, more or less parallel layers, which in places are so bent, curved and contorted as to assume a damascened appearance like that sometimes noticeable on sword-blades or on gun-barrels ; whilst, although but rarely, in places the dark ferro-magnesian minerals are in curved folia streaming around unaltered kernels of the acidic ones. In places the laminae are very thin, either parallel in their relationship one to another or very minutely crumpled, and the rocks

show the characteristics of crystalline schists. This schistose structure is far more common in the basic layers of the banded varieties of the gneiss than in the acidic ones, although instances of it occur in the latter. It also characterises some of the belts of the hornblendic rocks which traverse the gneissose country.

THE ORIGIN OF THE GNEISS.

A study of the gneiss, *in situ*, in hand-specimens and in thin sections, shows that the gneiss has undoubtedly been derived from granitic rocks, varying in their nature from aplite through granitite and quartz-diorite to basic rocks probably of a gabbro or diabase-gabbro type, by the action of dynamo-metamorphism, the degree of the mechanical and molecular alterations which they now exhibit being proportional to the intensity of the strains and other forces to which they were exposed during their deformation by earth-stresses.

The commonest variety of the gneiss is a grey or pinkish-grey granitite-gneiss which in places changes into a white or light-pink aplite-gneiss, in others to a darker-coloured hornblende-granitite-gneiss, and occasionally to dark-grey or greenish-grey quartz-diorite-gneiss, or to still darker-coloured diorite-gneiss. The granitite-gneiss is common with the other varieties of gneiss, but perhaps more frequently, is traversed by veins of aplite and of very coarse pegmatite. In many places veins of pegmatite and of aplite by gradual decrease of feldspar and increase of quartz, pass gradually and almost imperceptibly into quartz-veins. As far as they have been examined quartz-veins of this character do not contain primary gold in payable quantities; but there are many places, as at the Peters' mine, the Omai mine, the Tassawini mine and the Barima mine where auriferous quartz-veins in which the gold is of secondary origin are connected with intrusive masses of aplite.

In places, usually near intrusions of granite, the gneiss has undergone marked alteration, the ferromagnesian minerals being collected together and forming great masses of a basic biotite-gneiss, or more

often of hornblende-biotite-gneiss. These highly basic masses alternate with others of aplite-gneiss which frequently contain thin veins and small nests of green epidote. In a few places the banded varieties of gneiss contain layers of finely foliated green-coloured epidote-hornblende-schist.

The intensity of the dynamic metamorphism to which the original rocks were subjected varied greatly, and thus the degree of schistosity in the gneisses differs widely, while in sympathy with this so do the effects of weathering upon them: and these govern the character of the country in which they occur.

Although the massive varieties of gneiss pass gradually into the more foliated kinds, this is not noticeable when the waters in the rivers are high: and then the only rocks seen belonging to this series through long stretches of the rivers appear to be, unless very carefully examined, massive granites.

WEATHERING OF THE GNEISSES.

There is a well-marked difference in the weathering and the degradation of the foliated and the more massive varieties of the gneiss. The former yield readily to atmospheric influences and to the effects of the great differences in their temperature during the day—when in the dry seasons they are exposed to the rays of the sun—and during the night. They either split into small slabs and flat pebbles where the rocks are usually covered by the waters of the rivers and only in the driest parts of the year are exposed to the sun in the daytime and to rapid radiation of their heat during the nights, or, where they are more constantly exposed to these influences, they undergo degradation and detrition to white, grey, or cream-coloured, or ochreous sandy clays; which, in the parts below the usual level of the river, or otherwise protected from the action of the atmosphere and of that of percolating water, may retain the foliated structure of the original rocks, the positions of the more basic portions being indicated by lines and nests of rusty-looking ochre. The more massive kinds are far more

resistant to weathering, and remain as great rounded masses standing out from the surfaces of the foliated varieties, or as rounded rocks where the main mass of gneiss has been degraded into argillaceous products. Where bands of the massive sorts occur the country is traversed by low-rolling ridges, while the foliated varieties of the acidic gneiss give rise to relatively low-lying plains. But the more basic members, such as the hornblende-schists, epidiorites and amphibolites, usually project from the gneissose plains, and give rise to elevations varying from low knobs to ranges of hills which, as, for example, the Blue Mountains in the lower Essequibo district, attain to heights of several hundred feet.

The strike of the foliation of the gneiss varies greatly in direction, and it trends in several directions even in comparatively small areas—it may be, in places, north and south, whilst in others in the near vicinity it is east and west.

The general geological structure of the colony, in the districts not covered by the Kaieteurian, closely resembles that of the north-eastern seaboard of North America, and of the Brazilian seaboard of South America north of Rio Janeiro.

STRIKING NATURAL FEATURES.

From the foregoing it is evident that the country must possess numerous natural features of interest and importance. Accordingly we find that the courses of the rivers are interrupted by many cataracts and rapids and the rivers which traverse the Kaieteurian plateaus descend from them to the lower lying Archean land by high falls of which the finest is the Kaieteur on the Potaro. The plateaus are terminated in many places by mural cliffs of great height and having the structure characteristic of cliffs caused by the action of sub-aerial denudation on horizontal or slightly inclined strata. Where it has been forced by laccoliths, sills and beds of intrusive diabase to form plateaus of great height, the Kaieteurian gives rise to mountains the upper parts of which are bounded by mural

precipices as at Roraima. The rivers have cut deep valleys in places in the plateaus, many of which are, as is the Potaro valley, of surpassing beauty. For descriptions of these and of other natural phenomena the reader is referred to Brown & Sawkins' Geological Reports, and to the works of Schomburgk, im Thurn, Jenman, Quelch and other explorers.

GOLD AND THE GOLD-FIELDS.

The only minerals which are at present of economic importance and found in the colony in quantity are gold and diamonds. The gold is found widely diffused in the districts occupied by the Archean rocks, but usually only in payable quantities near intrusions of basic rocks. The basic rocks belong to at least two periods: (1) those of the gneissose formation, probably originally gabbro and diabase but now quartz-diorite, epidiorite, amphibolite or hornblende-schist; and (2) the unaltered diabase which is of later origin than the sandstone-formation.

The former rocks give rise to the Groete creek gold-field, parts of the Cuyuni gold-fields, the Puruni field and that of the upper Mazaruni. Gold is diffused through the mass of rock and is set free during its decomposition. From the degradation-products, which are chiefly quartz, concretionary ironstones, bauxites and ferruginous earths, the gold has been concentrated into the auriferous gravels by the normal process of weathering and detrition, and the gold of the placers has been enriched by processes of solution and re-deposition of the metal.

Where the Archean rocks are traversed by basic dykes, gold is not infrequently found in the decomposition-products, especially near the contact of gneiss and diabase. Where the basic dykes traverse a district already intersected by intrusions of quartz-porphyry, felsite and allied rocks and which has been subjected to dynamic metamorphism, the contacts are frequently rich in gold, and their degradation-products furnish the gravel for paying placers. The auriferous deposits occur more frequently where the dykes of

diabase are small and numerous than near the larger hill and mountain ranges, which, except possibly in localities where the amount of degradation has been very great, apparently contribute little gold to the potential wealth of the colony.

The occurrence of mineralised masses of acidic rocks, for instance the aplite-granite of Omai, is in places a very productive source of gold.

In some localities the silica set free during the decomposition of the rock has segregated out into lenticular masses in places resembling true quartz reefs. These are in parts exceptionally rich in gold and many carry the metal to payable extents. The majority, however, carry only small proportions of gold.

Fissure veins are not common in the colony, but auriferous ones exist in the Arakaka, Mazaruni, Potaro, and Puruni districts.

DIAMONDS.

The original source of the diamonds found in the colony is not known. There are indications in some districts that they have been derived directly from the degradation of basic rocks, whilst in others, they may have been originally derived from such sources, whence they found their way into parts of the sandstone-formation and from there by degradation and detrition of the rocks into the gravels in which they now occur.

Fuller descriptions of the geology of the colony may be found in the geological reports by Brown and Sawkins, in the Handbook of the Geology of the Gold-fields of British Guiana, and the various reports which have been recently issued dealing with the structures of the auriferous districts.

I.—THE COUNTRY.
CLIMATE.

CLIMATE.

The climate of British Guiana is a delightful one even for the tropics. In the coastal region there are two wet and two dry seasons. The long wet season usually commences about the middle of April and lasts until the middle of August. This is followed by the long dry season, which extends to the middle of November. From the middle of November to the end of January is the short wet season, while the short dry season extends from the beginning of February to the middle of April. The long dry season is usually to be depended upon, but the other seasons vary somewhat. In some years rains may extend more or less continuously from November to July—there being no short dry seasons ; while in other years the long dry season, commencing in August, may continue with only occasional showers to the following February.

The coastal region of the county of Berbice—the most easterly one—has the lowest rainfall, the average of 12 stations for the last ten years being 91'15 inches. The smallest falls occur at stations on the coast, while the heaviest are recorded at the stations situated at short distances up the Berbice River. The average rainfall of 22 stations in the county of Demerara for the last ten years is 95'03 inches. Here again the heaviest records are those registered at river stations. At the island station at Plantation Marionville, Wake-naam, situated in the Essequibo River estuary, the average for the last ten years has been 132'49 inches while for 4 stations in the county of Essequibo the average has been 101'35 inches. The details of the rainfall at Coastal Stations will be found under the heading "Statistics."

RAINFALL IN THE INTERIOR.

In the forest region of the interior the usual contrast between the wet and dry seasons is less marked than on the coast. The distribution of the rainfall is

generally more regular throughout the year than it is in the coastal region. Rarely do ten days pass in the forest region without rain, except occasionally in the months of September and October in some districts.

The records of the rainfall at 17 recording stations situated in the forest region are given elsewhere. These records show that the average yearly returns vary from 84'19 inches recorded at Matope, Cuyuni River, to 158'86 inches recorded at Look Out, Essequibo River. These stations may be grouped according to their situation as follows :—

	Demerara River 1 Station.	Lower Essequibo Rain Belt. 1 Station.	Essequibo River 3 Stations.	Upper Essequibo River 3 Stations.	Pomeroon District. 4 Stations.	North Western District.	
						Lower 2 Stations.	Upper 3 Stations.
January ...	7'21	13'97	6'46	7'49	9'70	9'48	6'89
February ...	5'44	11'54	5'26	6'45	5'63	7'76	5'20
March ...	8'82	15'18	7'45	9'76	9'88	6'61	6'59
April ...	10'54	11'75	8'23	9'50	7'83	7'41	6'83
May ...	13'35	20'15	10'56	12'53	12'75	11'26	9'83
June ...	13'38	20'53	11'58	11'85	15'85	18'16	10'68
July ...	12'65	18'34	11'45	10'76	12'36	14'25	9'47
August ...	11'00	12'92	7'51	7'03	9'36	10'10	7'65
September ..	4'99	9'56	5'89	4'55	5'26	8'42	5'16
October ...	4'44	4'89	4'70	4'01	4'59	8'21	5'25
November ...	6'23	7'39	8'88	5'71	8'64	9'54	6'38
December ...	8'43	12'64	8'01	7'79	11'99	12'54	8'80
Totals ...	106'48	158'86	95'98	97'43	113'84	123'74	88'73

In the savannah region to the far interior of the colony the rainfall is less than that registered either in the coastal region or in the forest region. Records have only been taken in the savannah region during the past three years, but there seems to be a well marked dry season during the months of October to February, while the wettest months of the year are from May to August. The average rainfall recorded at "Dada Nawa," Rupununi River, during the past three years has been 49'68 inches.

TEMPERATURE.

The mean temperature in the shade ranges on the coastal region from 79° F. to 82° F., the mean maximum registering from 83° F. to 87° F. and the mean minimum from 74.5° F. to 76.5° F. The variation in the temperature on the coastal region is remarkably small, the range between the mean maximum temperatures of the hottest and coolest months of the years being only 3° F. and the range of the mean minimum temperatures rarely exceeding 2° F. The hottest months of the year are August, September and October, and the coolest January, February and March. For most months of the year the maximum shade temperature rarely exceeds 85° F. and even in the hottest months 89° F. is but seldom recorded, while a temperature of 90° F. in the shade has been recorded on only three occasions during the past five years. During the night, the temperature seldom falls below 73° or 74° F. while a temperature of 70° F. is very rare indeed.

The temperature in the sun (as recorded by black bulb *in vacuo*) averages 142° F. The hottest months are September and October, while the coolest are generally December, January and February.

The temperatures in the forest region are only slightly different from those of the coastal region. The range of temperature is slightly greater but the extremes lie within the same limits, *viz.* 73° and 89° F. The mean maximum shade temperatures for the hot months of August, September and October are slightly higher than those recorded on the coastal region, while the mean minimum shade temperatures during the cool months of January and February are slightly less. The mean temperature in the sun ranges from 138.5° F. to 147.5° , although in the hot months temperatures of over 150° F. are recorded.

The range of temperature on the savannah region recorded at Dada Nawa, Rupununi River, is greater than in either the coastal or the forest regions. The mean maximum shade temperature is nearly 92° F. the hottest months being October and November,

while the mean minimum shade temperature is 72.5° F. the lowest records being registered during the months of December, January and February and sometimes during the wet months of May, June, and July.

RELATIVE HUMIDITY.

The relative humidity at 9 a.m. varies from 69.2 per cent. to 90.1 per cent. and at 4 p.m. from 71.7 to 87.6 per cent. The average at 9 a.m. is 79.6 while at 4 p.m. it is 76.9. The atmosphere is driest in the months of September and October, and dampest in May.

The relative humidity at Dada Nawa averages about 87 per cent. and ranges from 76 to 92 per cent. The atmosphere is apparently driest in the month of February.

WINDS.

Fresh sea-breezes blow steadily almost without intermission during the day-time for the greater part of the year. During the months of January, February and March they continue both day and night, and make living, even for the European, exceedingly pleasant. The general direction of the wind is north-east, east-north-east, or east. Occasionally, however, during the wet months of the year, a land-breeze is experienced from the south-east, south, or south-west and with this wind the heaviest falls of rain occur. The wind varies from "Gentle" to "Fresh" and gales are exceedingly rare. Hurricanes are unknown.

The constant winds temper the heat of the tropical sun and keep the temperature inside the houses cool and pleasant. Visitors from other tropical countries frequently express surprise at the pleasantness of the climate. The nights, too, throughout the year are uniformly cool and conducive to sleep. For tourists the climate from November to March is a great attraction, especially to those who desire to escape the rigours of a temperate winter.

SUNSHINE.

There are rarely twenty days in any year on which bright sunshine is not recorded. The daily average throughout the year is a little over six hours,

but except when rain is falling, dull and cloudy weather is very rarely experienced. In the dry season the average record of sunshine is nearly ten hours per diem. Rain generally occurs during the early part of the day, and it is extremely rare for it to fall at 4 p.m. No matter, therefore, how wet the first part of the day is, the afternoon is sure to be dry enough for visitors and residents to take the usual walk or drive.

Meteorological records are taken twice daily, *viz.*, at 9 a.m. and 4 p.m. local time, at the Botanic Gardens, Georgetown, and at the Penal Settlement, Mazaruni River. Both of these stations are fitted up as Normal Climatological Stations of the second order of International Classification. Temperature and rainfall records are also taken at Dada Nawa, Rupununi district, and rainfall records are taken at 40 stations on the coastal region and at 18 stations in the forest region away from the coast.

I.—THE COUNTRY.
HYGIENE.

HEALTH AND SANITATION.

The general health of Georgetown may be considered fairly satisfactory for a tropical city, but unfortunately an excessive infantile mortality and the spread of tuberculosis, chiefly among the coloured races and the fact that a large number of cases, many of them practically moribund, are brought in from the country districts for treatment in Georgetown, tend to keep up a death-rate of about 35 per thousand. The mortality amongst Europeans only during the last three years has been but 14·8 per mille of the estimated population; and if the mosquito bye-laws recently enacted are properly enforced a great improvement will be quickly brought about. There has been no serious epidemic for many years.

THE "INTER-TIDAL" DRAINAGE SYSTEM.

The land on which Georgetown stands being some four feet below high water-mark, the drainage is on the inter-tidal system; the sluice gates or "kokers" of the canals being opened as the tide falls to allow the surplus water to drain off and shut again as the tide rises. Any pipe system of water-conveyed sewage being difficult to arrange under these peculiar conditions, the conservancy system is carried out partly on the pail system worked at night time but more generally by cesspits, underground hose extractor apparatus and air-tight vans, the contents of which are discharged directly into the tide-way at the mouth of the river. The ordinary street and house-yard refuse, condemned foodstuffs and carcasses of domestic animals are collected by the Corporation carts and calcined in the Destructor.

The drinking water supply being from screened vats attached to individual houses the risk of contamination from the cesspit system is reduced to a minimum and any epidemic from this cause is impossible.

OUTFIT AND HYGIENE.

It is quite unnecessary for the visitor to bring with him more than the usual kit, as it is possible to obtain in the colony everything required and at much the same price as in England. In Georgetown, where the temperature rarely exceeds 87° F. in the shade, the usual costume consists of ordinary light summer clothes. White linen drill suits with straw or felt hat and white canvas or buckskin boots are much in favour for business wear. It is strongly recommended that in order to keep the body at a fairly even temperature soft and light flannel should be worn next to the skin both day and night. When travelling in the interior it is advisable to wear woollen or flannel clothing. Suits of this kind which have become unserviceable for wear in England will be found useful in the bush. Khaki or other similar material may be worn, but light flannel underwear both day and night is an absolute necessity as a precaution against sudden chills. For headgear a soft felt hat with high crown is the most comfortable, while for footwear, strong broad-soled boots of shooting pattern—but not too heavy—with woollen socks, are the best. Light, easy-fitting rubber-soled canvas shoes should be taken for wear in camp. A pair of stout leggings will be found serviceable and a strong umbrella and a waterproof cape or light oilskin jacket should be carried for rainy weather.

WARNINGS REGARDING BAGGAGE.

Portmanteaux, dress cases, or leather bags of any description should on no account be taken into the bush as they are affected by the damp and insects and rapidly fall to pieces. The ideal packages for keeping clothes are airtight metal uniform cases. Where the traveller can afford these, he must bring them with him as they cannot be obtained in the colony. For those who cannot afford these, ordinary shallow steel or iron trunks, termed locally "canisters," form an excellent and cheap substitute. For sleeping in, an Indian hammock of local manufacture made of undressed cotton

should be selected; they are more comfortable than hammocks made of canvas. Camp beds of all descriptions are out of the question for the traveller on the move. A suitable mosquito-net *must* be provided AND USED. No circumstances should be allowed to hinder this most important precaution, which is indeed essential if the traveller desires to keep his health in the colony. A fairly warm blanket is a necessity, the nights and early mornings being often very chilly. The traveller's hammock, mosquito-net, blanket, and sleeping suit, are carried for convenience in a painted canvas bag tied round with the rope used in supporting the hammock. A piece of light waterproof sheeting about 6 feet x 4 feet will be found very useful for placing on the ground under the hammock as a protection against damp and wet. The traveller is strongly recommended to bring with him an "artist's" folding camp chair with detachable canvas seat. This particular kind of chair will be found exceedingly useful and handy. A hand compass, a pocket knife with corkscrew attached, a good cutlass or machette, and a damp-proof box for matches should also form part of the equipment.

FIRE-ARMS.

The carrying of weapons for self-defence is quite unnecessary, and the newcomer who brings out an assortment of firearms only burdens himself with additional expense, as duty must be paid on each article and a licence taken out. The import duty in the case of a gun is at the rate of $12\frac{1}{2}$ per cent. *ad valorem*, and on a revolver \$5. For providing a change in the diet an inexpensive double-barrelled 12 bore gun may be carried with cartridges of B.B. or No. 5 shot which can be obtained locally. The ware for all domestic purposes generally used in the bush is of enamelled iron, of which the stores in Georgetown offer a large selection at reasonable rates.

MEDICINES.

A large assortment of medicines will not be required, as with ordinary care there will be little use for them. Such drugs as are carried should be in tabloid

form. Quinine, phenacetin and chlorodyne are necessary and some form of aperient—castor oil, calomel or Glaubers salts—is always invaluable. Some anti-septic ointment, some plaster for cuts, ammonia for insect bites, carbolic soap, and a Lauder Brunter lancet for snake bites, should also be included. Where mining labourers are employed certain simple and inexpensive remedies are officially prescribed and must be carried.

The usual travelling tent consists of a tarpaulin or flat oiled canvas sheet having four or more eyelet holes along each side. This sheet is stretched over a pole fixed horizontally between two trees to form the ridge of the roof, while the sides are kept extended by means of sticks planted leaning outwards and then pulled inwards and tied by string attached to the eyelet holes. Closed-in tents of all kinds are useless. Visitors are warned against bringing with them a varied assortment of tents, canteen pots, tools, etc.; where such have been brought to the colony they have been found quite unsuited to local conditions and have been left behind in Georgetown. Everything necessary of this kind can be obtained locally at cheap rates.

II.—POLITICAL.

THE PEOPLE.

THE ABORIGINAL INDIANS.

The Aborigines of British Guiana are widely scattered in many small groups or families all over the colony, and it is almost impossible to estimate the number of them even approximately. In the census of 1910 the Aboriginal population was returned at 13,000.

Compared with the ordinary European standard all the "Buck" Indians are of small stature. The smooth and almost hairless skin varies in colour from a dark coppery brown to a light reddish-yellow hue. The face is broad; the hair black and lank; the eyes dark and usually narrow; the neck short; and the whole countenance curiously resembles the Japanese type. The chest is deep, broad, and muscular: the legs and arms well-shaped but somewhat thick; the hands and feet, especially those of the women, remarkably small.

The character of the ordinary Buck Indian in his natural state is a decidedly admirable and moral one. He is of a peaceful and amiable disposition and readily responds to fair and just treatment. He is not "civilized" it is true, nor has he any desire to be; but he certainly does not deserve to be considered a savage.

"KANAIMA."

The Buck Indians are usually willing to act as boathands, carriers or guides. They cheerfully assist the traveller within the limits of their tribal district, but beyond these somewhat vague boundaries they seldom care to go. If much provoked or dissatisfied they control any animosity they may feel against the stranger who employs them, but they will quietly disappear, abandoning their wages and leaving the offending traveller stranded—a serious state of things in the far interior. Amongst themselves family feuds or vendettas are not unknown, and sometimes lead to mysterious murders which are ascribed by them to the "Kanaimas" or Evil Spirits.

This belief in spirits may be said to constitute their religion; and the Buck, cannily arguing that he has nothing to fear from the good spirits, seeks to propitiate or drive away the evil spirits through the influence of the Peai or Medicine man. They indulge periodically in drinking bouts generally combined with dancing, and on these occasions both sexes imbibe large quantities of Paiwari and Cassiri—their native drinks—until they become quite intoxicated. Paiwari consists of fermented cassava and Cassiri of fermented sweet potatoes; and the method of preparation involves a preliminary mastication of the ingredients by the women—a fact which the intending traveller will do well to forget, for on occasion the drinking of the ‘cup of courtesy’ is compulsory.

COSTUME.

The native costume consists of a long strip of cloth or “lap” for the men and a tiny apron called a “queyu,” made of seeds or beads, for the women. The men do not consider themselves decently dressed unless they have painted on their faces their tribal mark. On festive occasions they adorn themselves with feather crowns of various colours. Along the coast-lands and in the more settled parts of the colony nearly all the Indians have now adopted European clothes, but when so clad they have an uncomfortable, slovenly and somewhat ludicrous appearance. They appear to best advantage in their native costumes and amidst their natural surroundings.

THE PRINCIPAL TRIBES.

The Aborigines of the colony are divided into four distinct tribes each speaking an entirely different language. These are :—

- (1) The *Warraus* or Swamp Indians, found only on the low-lying coast-lands and around the mission stations near the coast. They are a timid people, very dirty, and particularly skilled in the making of “dug-outs” or corials.
- (2) The *Arrawaks*, who live on the slightly elevated lands lying between the lower reaches

of the rivers. They are most cleanly in their personal habits and more civilised than any of the other tribes. Nearly all of them can speak English ; some of them also speak Spanish ; while others have learned to read and write in both languages. They all wear European clothes and are excellent boathands and expert wood-cutters. They have a great aversion to the other tribes, particularly to the Caribs.

- (3) The *Carib* tribe, which includes the true Caribs, the Arecunas, the Akawois, and the Macusis. The few remaining true Caribs are scattered over the country, mostly on the upper Barima, Barama, and Cuyuni rivers. Their fighting propensities are historical, and to this day they are held in great fear by the other tribes.

The *Akawois* are born traders and are distributed chiefly over the forest-clad country round the Upper Mazaruni basin. They are generally good-humoured and easily amused at trifles.

The *Macusis*, a small tribe, are confined to the Savannah country between the lower Rupununi and the Ireng and Takutu rivers. Of all the Indian tribes they present the handsomest appearance and have the most pleasing manners. They are the chief makers of the famous "wourali" poison, experts in the use of the blow-pipe, keen huntsmen, and are generally of a sporting disposition.

- (4) The *Wapisiana* tribe which inhabits the Savannah country around the upper reaches of the Rupununi and the Takutu rivers. They are the great traders of the southernmost parts of the colony and the canoe makers of the interior. They have a somewhat taciturn nature combined with much decision of character.

Some isolated tribes are to be found in the little explored portions of the colony to the extreme South

and East. Very little is known of them and they cannot therefore be classified ; but one of them, the Wai-Wois, who are located around the head waters of the Essequibo river, are famous for their trained hunting dogs and their ornamental feather work.

THE INDIAN AS ARCHITECT.

The Indian dwellings may be divided into two types,

- (1) The Forest type or *Benab*, rectangular in shape with open sides and sloping roof, thatched with palm leaves and almost touching the ground.
- (2) The *Savannah house*, invariably round or oval shaped, with a high conical roof thatched with palm leaves and resting on a low wall built of wattle and plastered with kneaded clay.

A constant feature of Indian houses is the hammock, which, indeed, civilization owes to the Guiana Indian. At night the Buck lights a fire beneath his hammock to prevent the chill of the night air—a refinement of luxury to which civilization has not yet attained.

POPULATION.

POPULATION.

One of the most interesting aspects of British Guiana is the cosmopolitan character of its population. Europeans, Portuguese from Madeira, Chinese, East Indians, "Buck" or Aboriginal Indians, and Negroes may be encountered at any time in Georgetown, and the coloured or mixed element between all, some, or any of the pure races is ubiquitous. A census was taken on April 2, 1911, after a lapse of twenty years; and in the results obtained by the Commissioner many interesting points may be noticed.

Strictly speaking, the only "natives" of British Guiana are the "Buck" Indians, the aborigines of that portion of the Continent of South America now occupied by the Guianas. Europeans came next in order of time and the negro slaves introduced by these followed. A good idea of the sources from which the very mixed population of British Guiana has been drawn is given by the following table:—

Number of Immigrants, classified according to Nationality, arriving from 1835 to 31st March, 1911.

Whence.	1835 to 1840.	1841 to 1850.	1851 to 1860.	1861 to 1870.	1871 to 1880-81.	1881-82 to 1890-91.	1891-92 to 1900-01.	1901-02 to 1910-11.	Totals.
West Indian Islands ...	8,092	4,836	...	10,130	12,887	4,161	707	...	40,813
Madeira ...	429	16,744	9,587	1,533	2,170	182	...	...	30,645
East Indians..	406	11,841	23,381	38,715	53,327	38,851	39,473	23,760	229,763
Casuals ...	...	...	...	800	878	918	1,027	788	4,411
Azores ...	...	...	164	...	...	...	...	...	164
Africa ...	91	9,893	1,968	1,403	...	...	...	...	13,355
England ...	...	...	21	...	...	...	...	...	21
China ...	...	...	3,288	9,343	903	...	...	...	13,534
Cape de Verde ...	...	...	819	...	...	...	...	...	819
Malta ...	208	...	...	...	...	...	...	...	208
United States	70	...	...	...	...	...	...	...	70
Totals ...	9,296	43,314	39,228	61,924	70,165	44,112	41,207	24,557	333,803

It is estimated that the total number of Aborigines is 13,000, the majority of whom are to be found

in the more remote parts of the colony. These are not reckoned in the detailed figures given in the census returns.

The population of the colony in 1911 was estimated at 296,041, which gives an increase of 17,713 since 1891, the date of the previous census. Had there been no East Indian immigration the population would have shown a decrease of 9·8%, instead of the increase of 6·36% actually recorded.

Had there been neither immigration nor emigration the decrease would have been 7·2%. East Indian immigration is therefore the only factor accounting for the growth of the population. The East Indians, the blacks and the coloured race, collectively, contributed an increase of 24,493, while the remaining race divisions were responsible for decreases aggregating 6,780. The aggregate increase from excess of births over deaths, contributed by the blacks and the coloured or mixed race only amounted to 9,466, while the aggregate loss from excess of deaths over births, for which the other race divisions were severally responsible totalled 11,733. The total increase from immigration among the East Indians was 27,327, and the total aggregate losses by emigration 7,347.

DISTRIBUTION OF THE POPULATION.

Of the total population 22·34% is resident in the towns, and 77·65% in the country. The people are distributed over the three counties (into which the colony is divided) thus :—

Demerara	175,596	...	...	59·31%.
Berbice	65,862	...	...	22·25%.
Essequibo	54,583	...	...	18·44%.

Georgetown, the capital, has a population of 57,577, or 19·44% of the total of the colony. This is made up of 48,828 from the city itself, and of 8,749 from the suburbs. The growth of the suburban population is remarkable; it represents an increase of 61·3% since 1891.

New Amsterdam has 8,604 inhabitants, compared with 8,903 in 1891.

RACES.

The number of each nationality or race comprising the population of the colony is shown in the following summary :—

Race Divisions.	Number of Persons.		Percentage of total Population formed by each Race division.		Percentage of each Race.	
	in 1911.	in 1891.	in 1911.	in 1891.	Native-born.	Foreign-born.
Europeans ...	3,937	4,558	1'33	1'64	56'06	43'94
Portuguese ...	10,084	12,166	3'40	4'37	81'08	18'92
East Indians ...	126,517	105,463	42'74	37'89	52'69	47'31
Chinese ...	2,622	3,714	'89	1'33	75'82	24'18
Blacks & Africans.	115,486	115,588	39'01	41'53	91'49	8'51
Mixed Races ...	30,251	29,029	10'22	10'43	89'62	10'38
Aborigines ...	6,901	7,463	2'33	2'68	100'00	...
Races not stated..	243	347	'08	'13	...	100'00
All Races ...	296,041	278,323	100'00	100'00	73'88	26'12

The distribution of the races in each district of the colony, and in the two towns, is given in the following table :—

District.	Europeans.	Portuguese.	East Indians.	Chinese.	Blacks and Africans.	Mixed Races.	Aborigines.
City of Georgetown ...	45	100	105	11	480	258	1
County of Demerara ...	18	50	397	10	395	122	8
Town of New Amsterdam...	23	43	150	29	578	177	...
County of Berbice ...	6	10	527	8	372	63	14
County of Essequibo ...	7	13	407	7	399	85	82

The table is to be read in the following manner :—

"In every 1,000 persons in the population of Georgetown, there are 45 Europeans, 100 Portuguese and so on."

Of the total population above 5 years of age 71'5% was returned as "Occupied," and 35'4 as of

no occupation. The chief occupations were Agricultural 40%, Industrial 15·7%, Domestic 11·2%, Commercial 3%, and Professional 1·7%.

RELIGIONS.

The religions of the people were first scheduled in the 1911 census, 95·32 per cent. of the population being returned as professing some specified religion. Of these 59·4 per cent. were returned as "Christian," and 38·64 per cent. as "non-Christian."

Of the Christians 43 per cent. belonged to the Anglican church, 14 per cent. to the Roman Catholic, 11 per cent. to the Presbyterian, and 10 per cent. to the Wesleyan, while 22·7 per cent. came under the head of "Other" denominations. These last comprised Congregationalists, Plymouth Brethren, Moravians, Canadian Presbyterians, African Methodists, Salvationists, Pennyites, and Seventh Day Adventists.

Of the "non-Christians" 83·5 per cent. professed Hinduism, this being 75·4 per cent. of the East Indian population and 33 per cent. of the total population of the colony. The Mohammedans made up 15·9 per cent. and Parsees '6 per cent. of the number of the non-Christians.

II.—POLITICAL.

IMMIGRATION.

IMMIGRATION.

Tropical agriculture depends for its success upon its labour supply, and British Guiana has been no exception to this rule. In the early days the value of an estate was very largely the value of the slaves upon it; so much so that this formed the most convenient criterion for taxation purposes. The West has never had the teeming populations of the East; and when in 1814, the slave trade was abolished by the British Parliament the troubles of the planters on the "Three Rivers"—which now constitute the colony of British Guiana—began to grow acute. The importation of slaves stopped; the working population rapidly decreased; until in 1834 the Emancipation of the slaves brought matters to a crisis. Continuous and steady work was what the planter required and this was just the thing the free negro was incapable of giving. The planters, faced with ruin, had recourse to immigration; and the history of the development of this system from its first crude efforts, through its many and sometimes almost fatal mistakes, to the present day, when it has been justly described as a model for all the world, makes an interesting study. Incidentally the sixty years of immigration have gained for British Guiana a polyglot population, consisting of large numbers of Portuguese and natives of Madeira, who have managed to get into their hands the bulk of the retail trade of the colony, rivalled in a small way by a fair sprinkling of Chinese; a much larger number of Africans who as schoolmasters, sicknurses, artizans and porters, fill an important part in the economy of the colony; and a greater number still of the natives of India, who with their love of land and fondness for agricultural and pastoral pursuits will probably have a greater influence on the future of the colony than all the other races put together.

DIFFICULTIES OF THE PLANTERS.

It must always be remembered that immigration was forced upon the planter by dire necessity, and was carried out by private enterprise. The British West Indies and Madeira appear to have been the fields previously exploited. In 1835, the first date on the record, 157 persons from the former and 429 from the latter arrived in the colony. In 1838 India and Africa were drawn upon, and in the next couple of years Malta and even the United States contributed their quota. The old-time planters were not afraid of making experiments, and certainly they had to learn from bitter experience. Always they had to reckon with the "Anti-Slavery Society" in England, which insisted upon regarding immigration as a "new species of slave trade," and wielded a political influence powerful enough to stop the traffic absolutely in certain directions for several years. In 1839 the situation had become desperate. Immigration from India was prohibited; immigration from Africa was embarrassed with vexatious restrictions; immigrants from other countries, obtained with great trouble, were found unsuitable for the most part, and in the case of the exceptions there was no law to enforce the performance of their engagements. These difficulties culminated in 1840 in a deadlock between the Government and the elective section of the Combined Court, when the latter declined to grant a new Civil List unless free immigration from all parts of the world was guaranteed. This unfortunate state of things lasted till January, 1841. An arrangement was then come to, the Civil List was voted and an Ordinance passed providing funds from the revenue of the colony "for encouraging the introduction of labourers in husbandry;" creating a Board of Commissioners for the management of these funds and the payment of bounties for immigrants; and appointing an Agent General for Immigration, Emigration Agents, and an Immigration Agent for Berbice.

IMPROVEMENTS IN THE SYSTEM.

Up to this point (1841) solely by the enterprise and energy of private individuals, at their own expense and risk, and in spite of difficulties and obstacles, 9,160 labourers had been introduced. The law, however, was still found unsatisfactory and inadequate, and in 1843 another Ordinance was passed—the first to receive the approval of the Home Government. It placed the management of immigration from Africa in the hands of Her Majesty's Government; guaranteed to the immigrants return passages to their native lands; and provided for contracts of service for periods not exceeding one year, terminable on three months' notice. The year 1843 was also marked by the departure of two ships for India carrying back 235 of the 406 immigrants who had arrived in 1838. These were the first return ships. The confirmation of this privilege induced the Secretary of State to withdraw the prohibition against immigration from India, and five thousand emigrants were at once applied for and the necessary financial arrangements made. But the difficulties of employers were far from ended. They had a good field for recruiting labour, it is true, and they could induce labourers to emigrate; but could they make them work? The Home Government would tolerate no interference with the liberty of the subject to dispose of his labour as he pleased; consequently the immigrants wandered about from estate to estate begging or working as they felt inclined: and the mortality among them was very great.

Two new Ordinances now made their appearance; one in 1847 defining the mutual obligations of employer and employed in respect of medicines and medical attendance, and regulating the management of rural hospitals; and a second in 1848 which fixed the indenture period at three years, and provided that no portion of an immigrant's stay in the colony should be reckoned as part of the five years' industrial residence required of the immigrant to entitle him to free return passage to India, unless during that time he had worked under a written contract

with some planter, or paid a monthly tax instead. But these remedial measures came too late: the "Anti-Slavery Society" was at work again; and again emigration from India was stopped.

THE CHINESE IMMIGRANTS.

The influx of labourers from the British West Indies ceased in 1846, but the scarcity thus caused was somewhat neutralized by numerous arrivals from Madeira, where famine was raging. From 1850 onwards, immigration from Africa began to fall off and recourse was had to China, whence the first immigrant ships arrived in 1853. The new importations proved very satisfactory labourers and most of them engaged in a second and even a third term of indenture, which was increased by Ordinance in 1862. Chinese immigration continued steadily till 1866 when 10,984 had been introduced. The women among them, although bound to reside on the estates, were under no obligation to work—a precedent followed in the present three years system with regard to East Indian women. Meanwhile, little by little as experience was gained, the law continued to be amplified, altered, and consolidated: hardly a year passed but had its Ordinance for the encouragement of immigration. In the year 1851 the Immigration Agent General was invested by law with the privilege of entering any estate for the purpose of enquiring into immigrants' complaints; in 1864 the Governor was empowered to order the removal of all or any of the immigrants from an estate if he considered such a measure to be in the interest of the people, and the Immigration Agent General was authorised to prefer complaints before the magistrate on behalf of the immigrants. The Immigration Agents resided in Georgetown and visited estates only half-yearly, or on special complaints; but the medical officers, appointed and paid by the owners of plantations were independent of the Governor and the Immigration authorities, and there were those who said that the people did not get the benefit that the law was designed to effect.

THE DES VŒUX INQUIRY.

August, 1870, saw the famous inquiry into the immigration system which followed on the serious allegations made by a former magistrate in British Guiana. Mr. (afterwards Sir) G. W. des Vœux. The report of the Commission, while pointing out certain defects in the system, was generally satisfactory, vindicated the Magistracy and the medical officers and acknowledged the fair dealing and kindness of the managers towards immigrants. In accordance with the recommendations of the Commission a new Ordinance was drafted and came into force in 1873. Soon afterwards the powers of the Immigration Agent General were much increased by the formation of Immigration Districts, each in charge of a resident Agent, and by his being appointed Secretary to the Governor in Immigration affairs and member *ex-officio* of the Court of Policy. In 1882 State-aided immigration from Madeira was brought to an end, and three years later the same fate befell immigration from the West Indies. In 1887 the medical care of the immigrants was placed under the charge of the Medical Department, which had just been formed. The year 1891 saw a further revision and consolidation of the laws into one—No. 21 of 1891—which however did not receive His Majesty's consent until after the receipt by the Indian Government of a special report on the treatment of their subjects in British and foreign colonies.

RETURN PASSAGES.

The right to a free return passage was early secured by law to the immigrants, and has been retained with some modifications to the present time. At first, after his ten years of residence in the colony, the children and dependents of the immigrant had the right to a free return passage, but when, after years of evolution, the immigration system had become competent and stable and widely known, it was decided that the terms of the law in this respect might be relaxed; and accordingly, in 1895, the male immigrant

was required to pay one-fourth of the cost of his return passage and the female one-sixth. In 1898 these proportions were increased to the present scale of one-half and one-third respectively. Despite such inducements as have been tried, the immigrant still continues to exercise his privilege of returning to his native land; and a consideration of statistics on the subject shows that if the labouring population is to be kept up immigration will have to be increased.

The present system of Immigration may be summed up as follows: The sugar estates indent through the local Immigration Department each year for the number of coolies they require, the orders being executed through the Emigration Agent in Calcutta. Each adult labourer costs the planters £11 12s. 6d. *plus* expenses of recruiting and collection, and of the Agency in India and a proportion of the cost of return passage. Thus in 1911-12 the cost of introduction was £19 10s. 2d., and the cost of return passages brought the total to about £22 18s. 4d. per adult. On arrival in Georgetown the immigrants are allotted to the various plantations. They come under indenture for five years on an estate and contract to remain in the colony another five years. They are provided with free lodging and free medical attendance; each estate providing its own hospital, and the colony the Medical Officer. An able-bodied male immigrant must do enough work in seven hours to earn one shilling a day; a minimum wage which is practically always exceeded. The women, though indentured for five years, need work for three only. After ten years in the colony, males can return to Calcutta on paying one-half the passage money, females on paying one-third. Re-indenture ceased in 1873 and free land grants were abolished in 1898.

“ CROSBY ”

No sketch of immigration in British Guiana would be complete without mention of Mr. Crosby, who died in 1880 after holding the office of Immigration Agent General for twenty-two years during the trying time

of its growth to its present efficiency and dignity. His zealous attention to the welfare of his East Indian protégés won their hearts, and his name still lives on their lips as the generic term for their protector. Any East Indian who is in trouble or has a grievance sets out to confide in "Big Crosby," and is perfectly content to abide by his decision.

II.—POLITICAL.

CONSTITUTION AND
GOVERNMENT.

CONSTITUTION AND GOVERNMENT.

The existing Constitution consists of the Governor, the Executive Council, the Court of Policy and the Combined Court.

THE GOVERNOR.

The Governor is appointed by the Sovereign and holds office during the Sovereign's pleasure. In him is vested exclusively the executive power, and he exercises direct supervision over the whole of the administrative departments.

THE EXECUTIVE COUNCIL.

The Executive Council consists of the Governor, the Lieutenant-Governor (if any), the Government Secretary, the Attorney General, and such other persons as may be appointed from time to time by the Sovereign or are provisionally appointed by the Governor. At the present time (1912) the Executive Council consists of His Excellency the Governor (Sir Walter Egerton, K.C.M.G.), the Government Secretary, (the Hon. C. T. Cox, C.M.G.), the Attorney General (the Hon. Sir T. Crossley Rayner, K.C.), the Hon. D. M. Hutson, K.C., the Chairman of the Local Government Board (the Hon. J. E. Godfrey, M.D.), the Hon. R. C. Grannum (Receiver General), the Hon. George Garnett, the Immigration Agent General (the Hon. J. Hampden King) and the Hon. C. G. A. Wyatt.

The Governor is President of the Council. The expression "Governor in Council" is defined under the law to mean "the Governor acting with but not necessarily in accordance with the advice of the Executive Council." The primary functions of the Council are to advise and assist the Governor for the time being in the administration of the Government. The Annual Estimates for the Combined Court are prepared by the Governor in Council. With the Coun-

cil also rests the trial and suspension from office of Public Officers charged with misconduct.

THE COURT OF POLICY.

The Court of Policy is now purely legislative, the executive functions which it formerly exercised having been transferred in 1891 to the Executive Council. It passes all Ordinances except the Annual Tax Ordinance and the Annual Customs Duties Ordinance, which are passed by the Combined Court. The power to legislate is derived from the Crown and is subject to veto by the Crown and to the power of the Crown to pass, by Order in Council, laws which cannot be altered by the authority of the Colonial legislature.

The Court of Policy consists of the Governor, seven official members, and eight elective members. The official section includes the Government Secretary, the Attorney General, the Auditor-General, the Immigration Agent General, and three other persons holding Public Offices in the colony; these being at the present time the Surgeon General, the Receiver General, and the Comptroller of Customs. The elective members are chosen by the direct vote of the people. General elections are held every five years unless the Court is dissolved earlier. At least two Sessions of the Court must be held each year at less than eight months' interval. No Bill can be introduced without the sanction of the Governor.

THE COMBINED COURT.

The Combined Court means "the Governor and Members of the Court of Policy with the Financial Representatives in Combined Court assembled." The powers possessed by the Court are the right to vote for the raising of Colony Taxes and to examine the Colonial Accounts; the right during the continuance of the Civil List to discuss the several items on the Annual Estimates of the colonial expenditure; and the right to move the reduction or striking off of any item on the Estimates not on the Civil List or secured by law.

The Financial Representatives are six in number and are elected in the same way as the elective members of the Court of Policy. Each holds office for five years concurrently with the members of the Court of Policy, and is eligible for re-election. There must be at least one meeting of the Combined Court in each year, and this is usually held in February or March to discuss the Annual Estimates and to raise taxes.

THE FRANCHISE.

Every male person is entitled to be registered as a voter and, being registered, to vote at the election of a member of the Court of Policy or of a Financial Representative, who possesses the following qualifications :—

- (a) Has attained the age of 21 years; and
- (b) Is under no legal incapacity; and
- (c) Is a British subject by birth or naturalization;
and
- (d) Has possessed within the District or Division within the six months previous to registration certain property qualifications.

HISTORY OF THE
CONSTITUTION.

HISTORY OF THE POLITICAL CONSTITUTION.

The political Constitution of British Guiana, as will have been seen, is quite exceptional among British Dominions beyond the Seas; and in order to understand it, some reference to its history is necessary.

The Constitution of the Colony is based upon that established by the Dutch. What is now British Guiana was twice captured by the English—in 1796 and 1802—before its final surrender in 1803. By the Articles of Capitulation signed on the 19th of November of that year it was agreed that the laws and usages of the Colony should remain in force and be respected; that the mode of taxation then in use should be adhered to; and that no new establishment should be introduced without the consent of the Court of Policy as the Legislature of the Colony.

THE PLAN OF REDRESS.

Of the historical records available for reference as showing what were the laws, usages, and mode of taxation at that time, the earliest and most important is that known as the "Plan of Redress" drawn up in 1787 and promulgated in the colony in 1789, by the Dutch authorities. Under it Demerara was made the seat of Government and the place where the one "Council of Policy" (as the body in which was vested the legislative power was styled) was to hold its sessions. The Council or Court of Policy consisted of:—The Director General; the Commandeur of Essequibo; the Fiscal of Essequibo; the Fiscal of Demerara; two Colonists from Essequibo and two from Demerara. The "Colonial Councillors," as the unofficial portion of the Council was called, were chosen from a double nomination of the Colleges of Kiezers, or Electors, of which there were two, one for each colony; the Burgher Officers who had formerly

acted in the same capacity in Demerara as the College of Kiezers in Essequibo having been replaced under the new Constitution by a similar College. Each College consisted of seven members elected by a majority of the votes of the inhabitants possessing not fewer than twenty-five slaves. In the exercise of its power the Court was subject to the control of the parent State.

THE TAXES.

There were at this period two sets of taxes and two separate Treasuries or Chests—the Capitation Tax, which together with the Import, Produce and Tonnage Duties went into the Company's (now King's) Chest, and the Ongeld, an additional head-tax first consented to by the planters in consideration of their having representatives in the Court of Policy, which belonged to the Colony Chest. This varied in amount according to the estimate of requirements, and was imposed by general consent for particular purposes.

The mode of raising and disposing of these taxes were a constant source of dispute between the Government and the planters. In 1795, during the absence of the Governor and the confusion consequent on a rising of the slaves, the Government Members of the Court of Policy called the College of Kiezers to a conference with them and resolved that the Colony Fund should be under the care of the Colonial Councillors joined to four Kiezers, who were to superintend the raising of the fund and regulate its expenditure. These four members were styled the "Finance Department."

THE ORIGIN OF THE COMBINED COURT.

The Governor of that day (Beaujon) however refused to convene the Finance Department, and this led to a renewal of the agitation in favour of the right of the popular representatives to control the expenditure from the Colony Chest. Nevertheless he was compelled to formulate a scheme for a system of financial representation; and this scheme, embodied in the Publication of the 11th June, 1796, forms one of the most important of the historical records relating to the

Constitution, for it is the instrument under which the Financial Representatives of to-day were created. By it the Resolution of the 3rd of June, 1795, adding four members to the Court of Policy, was expressly recalled and annulled, the arrangement constituted under it was declared null and void, and in its place six inhabitants were "adjoined" to the Governor and Court of Policy—three from each colony—to be elected by the inhabitants qualified as in the case of the Kiezers. These members were to serve for two years but "with the right of voting only for the raising of colony taxes and not further" and to examine, with the Councillors of Policy, the Public Accounts or, as they were then called, the "Accounts of the respective Receivers." The "Financial College," as these Representatives were styled, when assembled with the Governor and Court of Policy formed the Combined Court.

THE POSITION OF BERBICE.

Berbice was united with Demerara and Essequibo in 1831. Until then it enjoyed its own Government; the Constitution consisting of a Council of Government with a Governor in whom, as representing the Crown, was vested the right of appointing to vacancies. The power of the Crown was absolute, there being no body partaking of a popular or representative character. When Berbice, Demerara and Essequibo became one colony under the name of British Guiana, the old Courts of Colonial Justice were abolished and new Courts of Criminal and Civil Justice created by an Order-in-Council. The two separate Colleges of Kiezers were also merged into one, and the tenure of office of Kiezer was fixed as for life unless the party resigned or ceased to be an inhabitant.

DISPUTES AND THEIR CAUSES.

The constitutional history of the colony during the period now under consideration is remarkable for disputes between the Elective and Executive sections of the Legislature, arising mainly from the opposition of the Colonial Members to legislation by Order-in-

Council, to the efforts made by the Financial Representatives to exercise functions properly belonging to the Court of Policy, and to differences of opinion regarding the Civil List.

The first point arose in connection with the Order-in-Council which provided for the compulsory manumission of the slaves. It was maintained that the capitulation of 1803 invested the Court of Policy with exclusive Legislative power within the Colony subject to no control except the ultimate veto of His Majesty's Government. A Proclamation by the Governor on the 2nd February, 1802, declared, on the contrary, that the King, with the advice of his Majesty's Privy Council, had power to make laws binding on the colony, and intimated that His Majesty's Government were fully prepared to maintain this view and if necessary to enforce obedience to the Royal Orders-in-Council by the most decisive measures consistent with the law. This attitude was confirmed by the opinions of the Law Officers of the Crown in 1842. It must be pointed out, however, that the Home Government has always admitted the exclusive right of the Combined Court to raise a Revenue by internal taxation in the colony. The power of taxation has never been transferred to the Crown. The refusal of the Financial Members to acquiesce in the view that their functions were limited to determining by what particular taxes the annual Revenue should be raised and their claim to a control over the expenditure resulted after long negotiations in the compromise by which a Civil List was first established, to begin on the 1st January, 1836, and to continue to the 31st December, 1840.

THE CIVIL LIST.

Meanwhile the abolition of slavery in 1834 had rendered it necessary to alter the system of taxation to suit the new social conditions. The King's Taxes and the Colonial Taxes, which were mainly an annual tax on the planters of a certain sum per head for each slave, were abolished and the Ways and Means

necessary for carrying on the Government were raised by increasing the Import Duties, etc. Under the Civil List arrangement, the two Chests were merged into one; the revenue of the King's Chest—over which neither the Court of Policy nor the Combined Court had ever had control—was surrendered to the Combined Court as a part of the Ways and Means in return for, and during the term of, the Civil List. The powers of the Combined Court were now enlarged considerably, the Crown expressly conceding to the Court during the term of the Civil List certain rights of discussion over the Annual Estimates prepared by the Court of Policy which they had not possessed before but which members had for some years exercised without lawful authority. These rights—which were conceded without prejudice to the Crown's right of restoring the legitimate system at the end of the Civil List—are set forth, for the first time, in the Order-in-Council dated 3rd June, 1842, passed in compliance with the wishes of the Combined Court on the voting of the second Civil List in 1841. This Order, after reciting the promise made on the passage of the Civil List of 1836, declared that “during the continuation of the said Civil List Ordinance, but no longer, the Court of Policy with the Financial Representatives of the inhabitants of British Guiana in Combined Court assembled shall be and are hereby declared to be entitled and shall have and possess full power and authority to discuss in detail, freely and without reserve, the several items of the Annual Estimates of the Colonial Expenditure, subject always to the terms and conditions of the said Civil List Ordinance.”

FINANCIAL LIMITATIONS OF THE LEGISLATURE.

The right “to discuss in detail fully and without reserve the items of the Annual Estimate” did not confer the power to alter any such item, as may be observed from the fact that the right to reduce or strike off any item was bestowed concurrently by Standing Rules and Orders framed by the Governor

and approved by the Secretary of State for the Colonies on the 8th June, 1842. Under these Rules a member was expressly prohibited from moving the increase of any item on the Estimates.

ARGUMENT BY STOPPAGE OF SUPPLIES.

The constitutional limits of the rights and privileges of the Legislature under the Civil List arrangement were not settled without disputes which led to serious crises in 1840, 1842 and 1847.

On the first occasion the Secretary of State desired an increase in the salaries on the Civil List, but the Combined Court demanded such terms that the Governor refused to accede to them. The Court stopped supplies, and for the last half of the year the Civil List was left unprovided for. In 1842 the planters, having been unsuccessful in obtaining the assent of the Home Government to a loan on the credit of the Colonial Revenues to be expended for increasing immigration, refused to vote a Civil List for 1843 unless a large and comprehensive measure of relief should be afforded to the colony by means of immigration or otherwise. The Secretary of State in reply denied entirely the claim of the Court to vote the Civil List annually as part of the Estimates; and in 1848 the Home Government insisted that the Civil List should be presented to the Combined Court in a separate document showing merely the total amount to be provided as a matter of course. This continued to be the practice up to the year 1869; and although since that date the items comprising the Civil List have been inserted in the body of the Estimates in varying forms, their inclusion has been for convenience of record only.

THE COLONY WITHOUT A REVENUE.

In 1847 the Court of Policy passed a series of resolutions having for their object the reduction of all salaries guaranteed by the Civil List. The right of the Court to interfere with the Civil List was denied by the Secretary of State and the opinion of the Governor, as expressed to the Court, was that he

regarded the Civil List as a solemn engagement entered into for a definite period and that no authority short of an Order-in-Council could confer upon members the power of setting aside the Ordinance by which the Civil List had been guaranteed to Her Majesty's Government until 1854. Nevertheless, on the 20th July, 1848, the Combined Court by a majority passed a motion reducing the Civil List from £29,000 to £26,000. Thereupon the Governor adjourned the Court *sine die*, supplies were in consequence stopped and the colony was left without a revenue. The matter was referred to Parliament, and in July, 1849, a Committee of that body declared in explicit terms in favour of the claim of the Crown and against that advanced by the Combined Court. The elective members repudiated the Committee's decision on the ground that it had not yet been confirmed by Parliament and might be reversed. Eventually, yielding to the wishes of the public, who prayed that the business of the country might be proceeded with, the Estimates and Tax Ordinances were passed. Thus ended a series of disputes which had resulted in grave financial loss to the colony, the deficit on abandoned import duties alone being over \$708,000.

THE CHANGE IN 1891.

In the year 1891 a material change was effected in the Constitution of the colony by the enactment of the British Guiana Constitution Ordinance (No. 1 of 1891). By this Act the administrative functions of the Court of Policy were transferred to the Executive Council, the College of Electors was abolished, and it was enacted that the official members of the Court of Policy should be elected by a direct vote of the people.

II.—POLITICAL.

LOCAL GOVERNMENT.

GEORGETOWN.

Georgetown, the capital of British Guiana, the seat of Government and the chief port of entry for the Colony, is situated at the mouth of the Demerara River on the right bank, its position (taken at the Post Office) being $6^{\circ} 48' 48''$ N. latitude, and $58^{\circ} 9' 52.5''$ W. longitude, giving a difference of 3h. 52m. 46sec. behind Greenwich time. The official time for the colony has recently been made exactly 4 hours later than Greenwich mean time.

The capital was first established by the Dutch on No. 2 (Borsselen) Island, some miles up the Demerara River, and was transferred to Stabroek in 1782. Stabroek now forms the central Ward of the City of Georgetown which extends nearly two miles along the river front and has a depth of about one mile. The town is symmetrically laid out in wide streets forming rectangular blocks of building lots. Individual houses in the colony are always referred to by the number of the lot on which they stand.

MUNICIPAL.

Georgetown was so named in the year 1812 after the Prince Regent; obtained a Corporation by Ordinance in 1837; and about the same time—with the establishment of the Bishopric of Guiana and of the Cathedral of St. George—it was constituted a City. It is now administered under the Ordinance of 1898.

At the census of 1911 the population was returned at 57,577; and it may be described as a very mixed one. It consists of Europeans of various nationalities, mostly British and Portuguese, black and coloured people of all shades—native born or from one of the West Indian Islands—East Indians, Chinese, and Aboriginal (Buck) Indians from the interior: yet on the whole these form a quiet and law-abiding body of citizens. The city is governed by a Mayor

and Town Council and for administrative purposes is divided into fourteen Wards, for each of which a Councillor is elected. The number of registered municipal voters in 1912 was 499. The revenue of the Council is derived from a tax of two per cent. on the appraised valuation of lands and houses within the municipal boundaries, and from market fees, water rate, and so on. A Medical Officer of Health is responsible for the hygiene of the city; a Town Superintendent for the roads, drainage works, etc.

THE APPROACH FROM THE SEA.

As the visitor approaches Georgetown from the sea he first passes the lightship and pilot station which is anchored some ten miles from the land in five fathoms of water. The fairway, which is marked by buoys, shallows to nineteen feet on the bar at spring-tide high water. The entrance to the river is marked by the light-house, a brick building one hundred and three feet high, painted red and white in vertical stripes and showing at night a strong revolving white light flashing once every minute and said to be visible in clear weather for a distance of over twenty miles. At the junction of the right bank of the river and the Sea-wall stands Fort William Frederick, which used to mount twenty-one muzzle-loading guns—still used for saluting purposes—but has now some modern 4·7in. 'quick-firers' which command the entrance to the harbour. Inside the river there is ample anchorage, with a depth of water of thirty feet at spring-tides—the extreme rise and fall being ten feet. In the stream the current runs at a speed of three or four knots per hour.

Inside the fort is the Public Works Department with a Government Wharf or "Stelling" forming the first of a long series which extends along the river bank southwards to La Penitence. The view as one enters the river is not a particularly pleasing one; it is not until the visitor lands and emerges in Water Street, the leading business thoroughfare, that he realizes he is in a large and live city provided with

all modern conveniences, electric cars, attractive shops and business places ; nor does he appreciate the tropical beauty of Georgetown until he crosses East into High, Main, and other streets where he finds himself among private residences surrounded with a glowing wealth of coloured flowers and a luxuriant growth of vegetation. Once there, the width of the streets, the large canals covered with *Victoria Regia* or *Sacred Lotus*, and the flowering trees of many varieties lining the sides of the roadways will soon remove any misleading impression created by the river frontage.

ROUND THE TOWN.

Should the visitor land at the Royal Mail wharf (Garnett's Stelling) and turn to the right as he comes out into Water Street he will see on his left the large detached building belonging to the Royal Agricultural and Commercial Society, with a high signalling tower below which are the offices of the Demerara Electric Company, the meeting point of the various lines of the car system. In this building are housed the Society's fine Library and Reading Rooms and the Colony Museum, all of which are well worth an early visit. At the back and to the right of the same block will be found the General Post Office, which is at last housed in a manner worthy of the colony. Following the car-line along Water Street, the visitor will pass most of the chief stores and business houses and will note the British Guiana Bank on his left. Reaching the Market—a huge iron structure with a large clock tower, and a place of delight for those who wish to study the cosmopolitan population of Georgetown—the Public Buildings will be seen on the left, a substantial composite brick, iron and stucco structure exhibiting a good example of the Tuscan order of classical architecture and containing the Court of Policy Hall, the Government Secretariat, the Treasury, the Customs House and other administrative offices. Just by the market the car-line branches ; one line going south through Lombard Street and Charlestown—the Chinese

quarter—to La Penitence, Houston and Peter's Hall and the other running east up Croal Street to Bourda, the Botanic Gardens and the Georgetown Cricket Club Ground. Proceeding down Croal Street, with St. Andrew's, the principal Scottish Presbyterian Church (just rebuilt) and the Police Magistrates' Court-house on the right, the Victoria Law Courts come into view. This is a large modern building of Dutch timbered design, containing three separate Courts, chambers for the Judges and Law Officers of the Crown, and offices connected with the administration of Justice, the Department of Lands and Mines and the offices of the Surgeon General and the Local Government Board. A fine memorial statue in marble of the late Queen Victoria stands in the enclosure in front of the Law Courts and facing High Street.

A PICTURESQUE CORNER.

Following the course of High Street to the north—the large canal will act as a guide—our visitor will note on the right the Town Hall and Municipal offices, a handsome building of modernised Gothic design, with the central Fire Station and Depôt and the house of the Superintendent of the Fire Brigade to the south of it; the Colonial Bank standing in well-kept ornamental grounds on the same side of the street; and the Insurance Companies' offices—substantial business-like buildings on the left. He will then come to a picturesque corner with the Company Path Garden and St. George's (Anglican) Cathedral on the east, the Assembly rooms—accommodating the Georgetown Club on the ground floor with an excellent and commodious convertible theatre and ball-room above—on the west, the Carnegie Free Public Library to the north-east, and the fine vista of Main Street to the north. Main Street, shaded by well-grown Saman trees, leads past Government House across the railway line and so on through Kingston, past the residence of the Bishop to the Sea Wall.

THE SEA WALL.

The site of the City of Georgetown, in common with all the coast-lands of the colony, is an alluvial flat $4\frac{1}{2}$ feet below the high water level of spring-tides. In early days the townspeople had many a struggle with the encroachments of the water, and it was not until the Sea Wall was completed in 1882, after thirty years work, that the trouble was overcome. As it now stands the Sea Wall forms a breezy esplanade extending for a mile and a half along the ocean frontage to Kitty village, and the clean sands which have accumulated at western end of it make a favourite play-ground for children. One of the band-stands of the town is situated on the Sea Wall—the other two are in the Botanic Gardens and the Promenade Gardens—and here an excellent and well-trained military band attached to the British Guiana Militia plays between five and six o'clock p.m. on certain days of the week and on Sunday afternoons.

ALONG CAMP STREET.

One terminus of the tram-line is near the band-stand on the Sea Wall; the other end of the Sea Wall loop will be found a few hundred yards along the wall towards Kitty. As a trip round the town can be made very conveniently in the cars, the visitor is advised to take one. Starting, then, from the more eastern of the sea wall termini—the one to the Kitty side—he will see on his right the quarters of the officers attached to the semi-military police force which is responsible for law and order in the colony, and the parade ground where reviews are held on occasion. To the left the Thomas Road runs past Longden Park and some of the smaller cricket grounds. As he nears the railway line the huge bulk of the Public Hospital rises to the left and the railway station appears on the right. The car passes along Camp Street—one of the best residential quarters of the town—as far as the Water Works, where the “bush” water brought by canal from the Lamaha Conservancy is pumped into

the street mains to the amount of nearly six million gallons daily. This water, being of a peaty character, is used only for street watering, manufactures, fire extinguishing, and rough domestic purposes ; drinking water is supplied by the storage of rain water in large tanks or vats which are compulsorily provided on all private premises and are now screened by regulation to prevent the breeding of mosquitoes. In addition to these vats the Municipality has public storage tanks of the capacity of one million gallons, from which rain water is sold by ticket at a cheap rate.

Some distance beyond the Water Works the Sea Wall car crosses the big trench in Croal street and the Bourda car-line running East and West, and then cuts Brickdam at the point where the fine Roman Catholic Cathedral of the Immaculate Conception stands. This building, although of wood, is one of the finest in the town, and its graceful spire is the most conspicuous landmark in Georgetown as seen from the sea. Brickdam itself was originally the main road of Stabroek, and was in those days literally a brick dam. It is quite a common thing in the Colony for the roads to be called 'dams'; for in the swampy land of the coast the paths have always run on the top of the earth thrown up in digging the drainage canals. Between the Cathedral and the Market on the south side of Brickdam is the Central Police Depôt and the residence of the Inspector General.

THE SOUTHERN QUARTER.

Continuing the car journey past the Cathedral, our visitor will see on his left the Georgetown Gaol surrounded by a high, smooth wall made of sheet iron. Inside are some old brick cells which are worth a glance, as brick is a rare building material in British Guiana. Our visitor will notice as the car proceeds that he is entering a less desirable quarter of the town. The slums of the City, one may say, lie largely to the south of Brickdam. At last the car-line takes a sharp turn to the right into Broad Street, where to the left may be seen one of the entrances to La Repentir

Cemetery which covers 135 acres and is divided into denominational blocks. It is maintained by the Corporation. On the way down Broad Street the car passes the headquarters of the Department of Science and Agriculture, a large block of buildings on the right, which includes the Government Laboratory and the offices of the Board of Agriculture. A little farther on the Peter's Hall branch joins the Sea Wall line, and at the west end of Broad Street the car again swings sharply to the right at a point where another branch runs past Sproston's Offices and Works to La Penitence store and stelling—the wharf to which the Direct Line of steamers runs. Continuing along Lombard Street, the Refuse Destructor may be seen on the left; and the car soon arrives at the market, passing the Telephone Exchange on the way.

THE CHARMS OF BOURDA.

Taking the Bourda car at this point our visitor has a pleasant ride before him along Croal Street, which for general aspect has been compared to a street in Holland. As the car turns to the left out of Croal street, the Botanic Gardens appear on the right marked by the house of the Director standing at the corner of what until quite recently was the D'Urban Race Course but is now a Park and Experimental Field under the charge of the Director of Science and Agriculture. A little further on a halt is made opposite the entrance to the Georgetown Cricket Club, which is well worth a visit for it is probably the finest cricket ground in the Tropics. The playing field itself is almost perfect from a cricket point of view, whilst the new pavilion, recently completed, offers every convenience to members and their friends. Quite seven thousand people have been accommodated in the stands and around the rails at the cycle sports, which are held usually on Easter Monday and August Bank holiday.

Leaving the cricket ground, the car passes the junction of the Church Street line and crosses the Lamaha canal by a low bridge. Then turning again to the left

at right angles a residential quarter is traversed. At Waterloo Street—where Christ Church may be seen to the right—the visitor passes between the Promenade Gardens and the old Parade Ground, once famous for the cricket matches played thereon. Carmichael Street, the western boundary of the Promenade Gardens, leads past the main entrance of Government House to the railway station at its north end and southwards past Queen's College to the Cathedral.

Crossing Main Street the Bourda line joins the Sea Wall loop, and passing through Bentinck Street the visitor finds himself once more in Water Street. The tall iron chimney which may be seen from the junction at the corner of Bentinck and Water Streets is the Electric light Power Station, and the large white concrete building, the Cold Storage Plant and Warehouse. The stelling which adjoins this (Thom and Cameron's) is the place of departure of the Quebec Line of Steamers to New York.

NEW AMSTERDAM.

At the mouth of the Berbice river and on its right bank in latitude $6^{\circ} 17' 00''$ North, and longitude $57^{\circ} 33' 02''$ West, stands the town of New Amsterdam, the capital of the county of Berbice. It covers an area of 400 acres. A bird's eye view of the town shows it to be, like Georgetown, embowered in foliage. The town is well laid out and drained, and possesses an electric light installation, an excellent water supply, and an efficient Fire Brigade, all controlled by a Town Council to whom the control of the affairs of the town has been entrusted since 1868. In its situation and sanitary conditions the town is very similar to Georgetown, and a special description is therefore not necessary.

The visitor travels from Rosignol, the terminus of the railway line on the West Bank of the Berbice river, to New Amsterdam by ferry boat, passing Crab Island on the left. The long stelling leads into the main thoroughfare of New Amsterdam—the Strand,—and the visitor will be well advised to hire a conveyance in which to make the tour of the town. Turning to the left on leaving the stelling the broad road runs between shops on the left hand and private houses standing well back in ornamental gardens on the right. Passing the Post Office and the Berbice Saw Mills, the road takes a sharp turn to the right at Colony House, a high pillared wooden building with Government offices on the ground floor, a Court of Justice on the first storey and residential quarters above for Government Officers travelling on duty. An old-fashioned house in the Dutch style is also worth noticing at this point, as are the Ornamental Gardens in which Colony House stands. These are in the charge of the Director of Science and Agriculture and are beautifully kept up. Skirting the gardens and turning abruptly to the left the visitor traverses the best residential quarter in New Amster-

dam and reaches the Lunatic Asylum in which are treated some 750 patients from the whole colony. Two turns of the road and the carriage passes over the Canje Bridge, which is a remarkable structure. Its middle portion swings round on a pivot to give passage to large vessels, which can then be towed up the creek for over fifty miles. The drive may profitably be extended to the point where the Rose Hall road branches off to the right and leads to one of the largest sugar plantations and most interesting village settlements in the district. Returning, the visitor will notice All Saints' Scots Church, the Parade Ground and the Prison—all opposite Colony House—and directing his course straight on through High Street will pass All Saints' Anglican Church on his right and the Roman Catholic Church on his left some distance further along. Eventually he will reach the large and well-constructed Hospital at the extreme south end of the town. Turning to the right the drive may be concluded by way of the Strand and will finish at the Strand Hotel or the Club and Reading Rooms.

THE VILLAGES.

The colony's rural population is found in villages scattered along the coast-lands and for some distance up the principal rivers. Here the freed negro slaves settled after Emancipation. Forming themselves into companies, they bought with their savings, accumulated during slavery and the apprenticeship period, the estates of those of their former masters who, ruined by the termination of the slave system, were anxious to quit the colony, or they purchased the front lands of estates, the proprietors of which were eager to establish a resident population.

According to the economic census taken during the year 1902 there were 214 rural communities—villages and hamlets—ranging in importance from the hamlet with a population of 100 to the fair-sized village with 5,000 inhabitants, and distributed as follows:—96 in Berbice, 66 in Demerara and 52 in Essequibo, with a total estimated population of 87,000. The area of the land owned by the villagers was returned at 77,000 acres and the value of the house property thereon was set down at £272,291.

LOCAL GOVERNMENT.

The history of these village communities is a record, firstly, of the unsuccessful efforts of the villagers, left to their own devices, to manage their affairs, and, later, of the endeavours of the Government to provide an efficient system of village organization.

Numerous legislative Acts, all aiming at providing and perfecting the machinery needed for efficient village administration, have from time to time been passed.

Under the existing law,—the Local Government Ordinance, 1907, which consolidated and amended the laws relating to the villages,—the affairs of the villages, *i.e.*, villages declared to be such under the

Ordinance, are under the immediate direction of elected local Councils styled Authorities, subject to a Board, first created in 1878 and called the Central Board of Health but now styled the Local Government Board, at whose head is the principal medical officer of the colony.

These Councils have powers of voting funds and taxes, of appointing village officers, constructing village works, etc.

The execution of such works as drainage, embankments, etc., is supervised by local Authorities, on many of which there is at least one public officer who forms the medium of communication between the Board in Georgetown and the local Committee. Attached to the Board is a paid Secretary through whom the results of all the more important village affairs are kept under observation.

Towards the carrying out of works of the nature of drainage and sea defence, assistance is granted by the Government on the recommendation of the Board, in the shape of loans and grants from funds specially provided annually for the purpose by the Combined Court. The authorities are empowered in addition to levy a money rate and to require each inhabitant to contribute his portion to communal administration in the form of labour.

THE PAYMENT OF RATES.

A large measure of self-government was accorded to the villages in 1892, and this has been gradually extended with satisfactory results. Increased interest has been shown by the inhabitants in the working of the Councils, and the larger villages, after having been for years a source of expense to the Government, now pay their way. During the year 1911-12, 98.75 per cent. of the rates estimated to be received by the Incorporated Villages was collected as compared with 75 per cent. in 1900. There remain, however, a number of less populous and poorer communities the condition of which is still unsatisfactory. These are too scattered and their interests too distinct to

allow of their combining and working from a common centre, and being unable to maintain a supervisory staff they are still virtually without any system of organization.

At the close of the year ending 31st March, 1912, there were 91 Village and Country Districts under the control of the Board. The revenue collected by them for the year was £12,583, as against an expenditure of some £12,624. The indebtedness to the Government on 31st March, 1912, for loans was £10,461. Provision for the payment of these loans with interest is annually made.

II.—POLITICAL.

EDUCATION
AND
ECCLESIASTICAL.

EDUCATION.

SECONDARY SCHOOLS.

Education of the standard of a Public School is provided for boys at Queen's College, which is situated in Carmichael Street between Government House and the Cathedral. The College is maintained by the Colony,—the ruling body being the Governor and the Executive Council—and is quite undenominational in character. The staff consists of six Masters, four of whom are graduates in Honours of the Universities of Oxford, Cambridge or London. Science is taught by a special Lecturer and an Assistant, who are under the control of the Director of Science and Agriculture. The course of instruction throughout the College is specially arranged to satisfy the requirements of the Cambridge Local Examinations, but the senior boys specialize with a view of competing for the Guiana Scholarship in which the standard is that of an open Scholarship at Oxford or Cambridge. There is an examination for admission into the College, and the fees for pupils are as follow:—for boys in Forms V. and VI. \$15 (£3. 2s. 6d.) per term; in Forms III. and IV. \$12 (£2. 10s.) per term; in the preparatory Form \$7 50 (£1. 11s. 3d.) per term. There is a reduction in the case of two or more brothers attending the College at the same time and an additional charge of \$1 (4s. 2d.) for each boy for stationery. The number of boys averages 120 and the gross annual cost of the institution is about £2,600.

GIRLS' SCHOOLS.

The secondary education of girls is carried on almost entirely by private enterprise. There are several girls' schools doing excellent work, among which may be mentioned Woodside High School (under the direction of

the Bishop of Guiana) and the Ursuline Convent School.

Georgetown is a centre for the Cambridge University Local Examinations and for those of Edinburgh University and the College of Preceptors. The matriculation and the ordinary degree examinations of the University of London may also be taken in the colony.

PRIMARY EDUCATION.

The existing system of elementary education was established in 1886 and is almost entirely denominational and State-aided. The central administration is vested in an Inspector of Schools. He is responsible for the carrying out of all regulations dealing with elementary education: the exercise of certain of the statutory powers conferred on him is however subject to the control of the Governor-in-Council. In 1911 a Board of Education was established and the Director of Science and Agriculture was its first Chairman. The local control including the appointing and dismissing of teachers is in the hands of managers who are almost universally ministers of religion representing the different denominations to which practically all the primary schools of the colony belong. Education is compulsory for all children up to the age of twelve or for those who have not passed the third standard, and is free up to that point. For all pupils above this age or standard a fee of two-pence a week may be demanded.

A fixed sum is voted annually by the Combined Court for the purposes of elementary education. For the purpose of determining the amounts of the Grants-in-Aid payable in the ensuing year, each school is inspected and examined once a year. Proficiency is tested by class examination except in writing, sewing and arithmetic, in which subjects pupils are examined individually.

SALARIES.

Head teachers of schools can earn an attendance grant of \$3 (12s. 6d.) for every 30 children qualified by attendance and presented for examination in addition

to result grants which are awarded on the following scale :—

Reading	...	...	...	\$ 1'05	per head
Writing	...	...	...	1'05	"
Arithmetic	...	...	...	1'05	"
School Gardens, Trade or Industry	...	...	...	1'00	"
Nature Study	...	...	...	1'00	per head in Standards 4, 5 & 6
English	...	...	...	1'00	per head in all Standards
Geography	...	...	...	1'00	per head in Standards 3 to 6
Elementary Hygiene	...	...	...	'50	per head in Standards 4 to 6
Sewing	...	...	...	'50	per head in Standards 4 to 6
Singing and Drill	—	...	...	'25	per head for each subject in all Standards.

In addition headmasters receive salaries of \$8, \$15 or \$20 a month according to the class of their certificates of competency, and are further entitled to \$1 75 a month for each pupil teacher instructed in the school. The salaries of pupil teachers range from \$3 to \$7 or \$8 a month.

CLASSIFICATION OF SCHOOLS.

The schools are classified as A, B, and C schools. A schools are those which fulfil all the qualifications for Government aid; B schools are A schools which cease to fulfil any of those conditions or which have failed to obtain 40 per cent. of passes at the annual inspection in either writing or arithmetic and 45 per cent. of the full grant in reading; Mission schools for Aboriginal Indians and schools in sparsely populated districts are called C schools. These are limited to twenty-five in number, and their annual grants are fifty per cent. more than the amounts prescribed for A and B schools. No school can remain a B school for more than two years; unless within that time it again becomes an A school it ceases to receive any grant. The minimum number of attendances to qualify a pupil for grant-earning purposes is 250 for town schools, 200 for country schools, and 150 for schools on the rivers and creeks.

RIGHTS OF MANAGERS.

Managers have the exclusive right of appointing and dismissing teachers, such appointments being terminable by a month's notice on either side. A teacher dismissed otherwise than by notice has a final right of appeal to the Governor-in-Council. The Inspector of Schools can inflict fines upon teachers for any breach of the regulations and similar offences; and here again the teacher concerned may appeal to the Governor-in-Council.

THE TRAINING OF TEACHERS.

A competitive examination is held annually for the selection of teachers to undergo a course of training at Mico College, Jamaica. The scheme provides for the training of three male and three female teachers who are paid all expenses and fees for two years and receive two dollars and forty cents a month as personal allowance.

PENSIONS.

Head teachers are entitled to a pension of \$48 a year at sixty years of age if a man, or fifty years of age if a woman, or on becoming incapable by infirmity of mind or body; providing they have been continuously employed as principal teacher for a period of ten years immediately before retirement. The amount of the pension may be materially increased according to the class of certificate held by the teacher.

AGRICULTURAL EDUCATION.

Of recent years much attention has been paid to the teaching of agriculture in the colony. In addition to Nature Knowledge as taught in the primary schools, Model Gardens have been instituted by the Department of Science and Agriculture and have been placed in the charge of a Superintendent Teacher whose special business it is to travel about the country, overlook the gardens and give instruction therein. Each model garden is under the immediate care of a competent teacher who has a working gardener to assist him. In addition to nine model gardens judiciously

distributed, there are over one hundred school gardens in the colony. In 1912, over 24,000 attendances of children were registered at the model gardens as present during instructions given by the Superintendent Teacher, and this large figure does not include the very numerous visitors during his absence.

The school gardens are inspected periodically by officers of the Department of Science and Agriculture whose services are also at the disposal of farmers, small proprietors and any other agriculturists who may send in an application for them. Resident Agricultural Officers are stationed permanently in Berbice county, at Issorora Experiment Station in the North West District and at Marlborough Experiment Station in the Pomeroon.

LECTURES IN AGRICULTURE AND HYGIENE.

Lectures in Agricultural Science and the elements of Tropical Hygiene and Sanitation are given annually by the Science Lecturer to primary schoolmasters and pupil teachers. Separate courses, each divided into two parts, are delivered in New Amsterdam and in Georgetown, and are so arranged that students from all parts of the colony may attend without expense to themselves. Every endeavour is made to give a practical character to these lectures, which are very popular and well attended. Agricultural Science and Hygiene are compulsory subjects for the Teachers' Certificate and for the Pupil Teachers' examination.

Provision has also been made for the training of apprentices in Agriculture at the Botanic Gardens and the Experimental Fields, Georgetown. Under the scheme which came into operation on the 1st of April, 1907, ten apprentices between the ages of fourteen and sixteen may be indentured for a period of three years, during which time they are housed and boarded in quarters specially provided for them. They receive regular wages, on a sliding scale, and a deduction is made as payment for board. Those apprentices who have served their full time have so far found good positions on estates in the colony.

INDUSTRIAL SCHOOLS.

The care and education of destitute and vagrant children are provided for by the Industrial and Reformatory School for boys at Onderneeming, in the county of Essequibo, to which is attached an Experiment Station, and an Arable and Stock Farm. The principal training afforded the inmates is practical instruction in agriculture, but a limited number are trained as domestics and a few are taught carpentry and other trades. There are usually about one hundred boys in residence, whose average cost to the colony is about £18 per head.

SCHOLARSHIPS AND EDUCATIONAL ENDOWMENTS.

A *Guiana Scholarship* of the total value of £600 and, in the case of a candidate taking a medical course, such further sum as the Combined Court may vote, is offered for competition annually and is tenable at any University or College in the United Kingdom or any Agricultural or Technical College in Europe, the United States or Canada, that may be approved of by the Governor-in-Council. The scholarship may be held for three, four or five years according to the time required for the completion of the course of study sanctioned. The examination is competitive and is restricted to natives of the colony or the children of parents domiciled therein, or who have died therein. A competitor must not be over 20 years of age; must have for three years immediately preceding the examination received his or her education in the colony; must have passed the Junior or Senior Cambridge Examination with honours: and must be certified to be of good moral character and to be medically fitted to undergo the course of studies incident to a University career.

The two annual *Mitchell Scholarships* of the value of \$72 a year—one for boys and one for girls—are awarded on the results of the Cambridge Local Preliminary examinations. Each is tenable for four years at any school approved of by the Governor-in-Council,

but cannot be held concurrently with a primary school scholarship. The benefaction is made under the will of Walter Mitchell, who died in 1862.

The *Percival Exhibition* was founded by the old Boys of Queen's College to perpetuate the memory of Exley Percival their former Principal. Its value is £8 for one year, it is open to boys attending Queen's College, and is awarded each year to the boy who does best in the Cambridge Local Junior Examination.

PRIMARY SCHOOL SCHOLARSHIPS.

There are six Primary Scholarships awarded annually by competitive examination to boys and girls not above the age of twelve attending the Government-aided and private schools. The scholarships are tenable for four years with a possible extension to six years, and each carries a grant of \$30 and free tuition at any High School approved of by the Governor-in-Council.

SPECIAL PRIZES FOR GIRLS.

A prize of the value of \$5 is awarded to any girl who being under 16 years of age passes the Junior Cambridge Examination; a prize of \$10 is awarded to every girl under 18 years of age who passes the Senior Cambridge Examination; and a prize of \$50 is awarded to every girl of the above mentioned ages who obtains first-class honours at either of the above examinations.

THE SAFFON TRUST.

Under the will of Pierre Louis de Saffon, who died in Demerara in 1784, provision is made for the education and maintenance to the age of sixteen years of ten infant orphans who are natives of the county of Demerara. The selection of applicants is made by the Governor-in-Council, and under the terms of the will preference must always be given to the most poor and indigent and those born of white parents.

ECCLESIASTICAL.

The diocese of British Guiana is a distinct see under a Bishop and was separated from the diocese of Barbados in 1842. The Cathedral in Georgetown is dedicated to St. George.

The Roman Catholic Church is in the charge of the Bishop of Petenissus, Vicar Apostolic of British Guiana. The Cathedral Church of the Immaculate Conception is situated in the Brickdam, Georgetown.

The Church of Scotland, the Wesleyan Methodist Church, the Congregationalists and the Moravians are also well represented, and there is a Lutheran Church in Berbice.

Prior to the year 1899 the clergy of the Church of England and the Church of Scotland were paid salaries by the Government and were much in the same position as members in the Civil Service; no salaries were paid to the clergy of the Roman Catholic Church or dissenting bodies, but a lump sum was granted annually for the support of these churches. At that time provision also existed for the erection and maintenance of suitable residences for the clergy of the Church of England and the Church of Scotland under an Ordinance entitled the Parsonage Houses Ordinance. But in the year 1898 the Parsonage Houses Ordinance was repealed and in the following year the Clergy List Ordinance, 1899, was passed providing for the ultimate disestablishment of the churches in the colony. This Ordinance, while it preserved the rights of existing clergy, provided that no new clergy should receive salaries from the colony, but that as vacancies arose the colony should pay a sum equal to 75 per cent. of the salary of the retiring clergyman to the governing body of the church to which he belonged as a grant-in-aid of its funds. It is calculated that this scheme of disestablishment will take 20 years to complete, and during that period State-aid will be gradually withdrawn

to the extent of 25 per cent. from the churches under endowment from the public revenue. In like manner the lump sums granted annually to the Roman Catholic and Dissenting Churches are being subjected annually to a reduction equivalent to $\frac{1}{20}$ th of 25 per cent. of the sums granted before the passing of the Ordinance of 1899.

III.—ECONOMICAL.

FAUNA.

FAUNA.

There can be no doubt that British Guiana offers to the Zoologist, be he sportsman, amateur naturalist or trained scientific man, a field of immense interest. The Colony is only a small part of the great continent of South America, yet its Fauna is typical of the Neotropical region. Many of the animal forms characteristic of it present fascinating objects of study, while in birds and insects its wealth is quite inexhaustible. It would be impossible within the limits of a short article to attempt to do full justice to so vast a subject: the plan here adopted will be to touch briefly on the commoner animals which the visitor is likely to encounter in the colony, and merely to hint at those rarer or more curious forms which are deserving of a detailed study.

While approaching Georgetown from the sea the visitor may be fortunate enough to pass through a shoal of the "Portuguese Man-of-War" (*Physalia utriculus*), a peculiarly beautiful type of the Oceanic colonial polyps and one which the trade wind often casts up by hundreds on the shore. There they form an object of immense interest to children, who however have learned by experience the danger of handling them. No jelly-fish of English waters can approach the Portuguese Man-of-War in stinging powers.

Sharks are common at the mouth of the rivers, the Hammer-head (*Zygaena malleus*) and the Dusky Shark (*Carcharias obscurus*) being the two most frequently met with. The Sawfish, too, occurs, and a fine specimen of *Pristis Perotteti* may be seen in the Georgetown Museum together with a stuffed Devil-fish (*Ceratoptera vampyrus*) which managed to entangle itself among the piles of the river front some years ago and was ignominiously shot for its stupidity. So ponderous was the brute that a crane had to be requisitioned to hoist it from the water; and the

arrival of the carcass at the Museum and the skinning of it *coram populo* in the Museum yard made a nine days wonder for the good people of Georgetown. The Devil-fish, by the bye, almost certainly owes its name to its appearance rather than to its disposition: its leaping antics are no myth, but the stories of its enveloping divers in its wings and attacking small boats are undoubtedly apocryphal.

SPORT WITH THE ROD.

Should the visitor be looking for sport with the rod he need not be disappointed. The Tarpon or Cuffum (*Megalops* or *Tarpon atlanticus*) is widely distributed and can be taken either with the fly, spinning or live bait. The Mahaica and Boerasirie creeks are favourite haunts of this fish and in them specimens of forty pounds weight may reward the fortunate or skilful. The largest, however, occur above the lock at the Lama "Stop-off," which is a favourite resort for anglers. There Leukanani (*Cichla ocellaris*)—the best 'fly fish' in the colony and one of the tastiest—affords good sport, as it does in most of the lagoons and clear waters of the front lands. Snook (*Centropomus undecimalis*), may also be taken in such places with a fly, shrimp, or small fish, and near the falls on the big rivers the salmon-like Biara (*Cyonodon scombroides*), runs to a weight of thirty pounds and affords capital sport as well as a welcome addition to the larder. Near Bartica, for instance, on the Essequibo river the Cartabac (*Tetragonopterus* sp.) which bears a strong resemblance to a sea-bream and averages a foot in length, may be angled for with a perch-hook and a crust of bread, and Pacu (*Myletes setiger*) of ten pounds weight can be beguiled with the inner kernel of the Hattie fruit (*Hevea confusa*). Other fish which afford fair sport are the Haimara (*Macrodon trahira*) and the little Houri (*Macrodon intermedius*).

Coming to fish of less direct interest to the sportsman, the small but vicious Perai (*Serrasalmo* spp.) is a source of considerable danger in certain parts of the

ivers, for it has been well described as "the wickedest fish that swims." It will go for anything fish, flesh, or fowl that is biteable, and its sharp triangular teeth can shear through any tackle softer than steel wire. The electric eel (*Gymnotus*) and sting-rays of more than one species occur in many of the shallow river waters and must be guarded against by bare-footed boathands. In the far interior, and especially in the Rupununi river, the gigantic Arapaima (*Arapaima gigas*) is still fairly abundant. Schomburgk heard of specimens from the Rio Negro which were fifteen feet long and over four hundred pounds in weight, but it does not appear that these dimensions have ever been confirmed. In the trenches supplied by the sea and along the muddy foreshore the quaint Four-eyes (*Anableps tetraphthalmus*) may be frequently encountered scuttling over the mud as actively as a lizard, swept backwards and forwards with each recurring wave, or swimming lazily along with the upper half of each strangely modified eye in the air and the lower half in the water. Another fishy curiosity of the front lands is the little armoured Hassar (*Hoplosternum littorale*, *H. thoracatum*) which is common in the trenches and may occasionally be met with in droves on the Savannah land seeking fresh fields and pastures new.

FISH AS FOOD.

An important part of the food supply of Georgetown comes from the deep-sea fishing which is carried on by schooners in the blue water some distance from the coast, and from local line and seine-net fishing which is pursued in the muddy waters near the shore. The former produces Snapper (*Neomaenis aya*) and Grouper (*Epinephelus itaiara*, *E. striatus*) the latter method mostly 'skin-fish' such as Gilbacker (*Sciadeichthys Parkeri*), Lau-lau (*Piratinga reticulata*), Cuirass (*Arius* spp.), and others of the Cat-fish type. One of these, the Tampoco (*Notarius* spp.) has a curious development at the base of the skull, and is sold in the shops as the "Curcifix fish."

The deep-sea fish are capital eating, and of the others the Queriman (*Mugil brasiliensis*), Mullet (*Mugil curema* and *M. incilis*), Butter fish and the Flounder (*Achirus lineatus*)—all 'scale fishes'—are the most esteemed and the safest. The flat, sandy sea-shore and the brackish trenches abound in shrimps, which are particularly good eating and are used to make a variety of dishes. A large Prawn (*Xiphopenaeus Kroyeri*), called 'a Scotchman' from a certain redness which may be noticed in its legs and appendages, appears occasionally on the hawkers' trays, and 'crab-backs'—similar to the 'dressed crab' of English menus—are a staple delicacy of the colony and indispensable at all entertainments. The crustaceans requisitioned in such cases are the 'Buck' or common crabs (*Uca cordata*); the 'boxer', or 'fiddler' crab (*Gelasimus* spp.), a nimble little fellow with one claw hugely developed, may be seen at any time scurrying over the mudflats and feeding busily unmolested by the epicure.

The only other denizen of the deep which calls for notice is the Manatee (*Manatus australis*) which is frequently caught by the long-shore fishermen and occasionally offered for sale—some specimens are to be seen in the ponds of the Botanic Gardens, Georgetown—and certain porpoises which ascend the rivers and may be observed disporting themselves in the Essequibo river as far up as Bartica.

BIRDS.

The visitor will not have been half an hour in Georgetown without noticing the strident and insistent cry of the Kiskadee (*Pitangus sulphuratus*) a typical example of the tyrant shrikes and one which lives up to its name in the most thorough-going manner. Its note is an almost perfect rendering of the French *Qu'est ce qu'il dit*, and for cheekiness, intelligence and love of bullying on a large scale, the bird can be compared only to the London sparrow. It is a voracious feeder and its powerful pickaxe beak renders it an object of terror to smaller birds and a caution even to the hawks which abound on the coast-lands. Of these hawks,

the commonest in Georgetown are the White-breasted Chicken Hawk (*Herpetotheres cachinnans*) and a large brown species of buzzard. The curious cry of the former, resembling the screeching of a rusty gate, may frequently be heard and always with anxiety by the hen-wife. Another bird which the visitor is sure to make early acquaintance with is the Carrion Crow—a vulture, in reality—of which two species (*Catharistes urubu*, *Cathartes perniger*) are common on the coast-lands and are still to be found in Georgetown, although discouraged as a nuisance by the sanitary authorities. The carrion crow is a foul bird in every sense of the term and appears to best advantage at a considerable distance—preferably high up in the air, where its graceful wheeling flight and marvellous *vols-planés* are a delight to the eye and a lesson to every one who aspires to become an aviator.

One of the most loveable birds of Georgetown is a tiny wren (*Troglodytes musculus*)—a cousin of the English wren—which is always a welcome visitor in the houses of the colonists, particularly of homesick Britishers; for not only is its appearance reminiscent of the Old Country but its note is a bright little warble which at once brings to mind the song of the English robin. Its friendliness, too, towards “humans” and their habitations is as homely and cheerful as that of the Christmas bird. There is a Red-breast in the colony—the American Robin (*Leistes guianensis*), a large bird with a scarlet “shirt front”—only he is not a robin at all but a starling by family. There is also a real thrush (*Merula albiventer*); yet he is nothing of a songster compared to his European relatives.

BIRD PROTECTION.

The value of small birds in keeping down insect pests is fully recognized by the Government of British Guiana (a list of the birds wholly or partially protected will be found in the Appendix) and a special licence from the Board of Agriculture is required before any bird may be killed. The visitor who wishes to study bird life in the colony cannot

do better than begin at the Botanic Gardens, where from years of efficient protection the birds are wonderfully tame and fearless of observation. There he will notice the beautiful Tanagers—the Cashew Sacki (*Rhamphocoelus jacapa*) and the Blue Sacki (*Tanagra episcopus*); the pretty little ground doves, of which three species are common—the savannah (*Chamaepelia Talpacoti*), the common (*C. minuta*) and the speckled ground dove (*C. passerina*); the useful ‘Old Witch’ or Tick bird (*Crotophaga ani*) with its curious amateur flight and liking for the companionship of cattle; and the Icterides—the Yellow Plantain bird (*Icterus xanthornis*) the Guiana Blackbird (*Quiscalus lugubris*) and the large black Rice bird (*Cassidix oryzivora*). In all, some 130 species of birds have been identified as frequenting the Botanic Gardens.

DUCK SHOOTING.

Along the east coast and up the numerous creeks, especially the Abary, many kinds of waterfowl may be met with, and during certain seasons good sport is to be had with duck and snipe. The vicissi duck (*Dendrocygna discolor*) is often to be seen in flocks of thousands, and the wonderful white Cranes (*Ardea cocoi*) and the Egrets (*Ardea egretta*), so valuable to the milliner for their plumes, are one of the sights of the coast-lands. Other birds which may be noted are the Negro-cop (*Mycteria americana*) the Heri (*Euxenura Maguari*), the Curlew (*Numenius Hudsonicus*), the Pika (*Totanus melanoleucus*) the Flamingo (*Phaenicopterus ruber*) and the Long-leg (*Totanus flavipes*).

The Golden plover (*Charadrius dominicus*) and the Muscovy Duck (*Cairina moschata*), the Powis (*Crax alector*) and the Marudi (*Penelope marail*) are common enough to afford excellent sport up the Abary Creek. Of the ‘bush birds’ the ‘maams’ (*Tinamus* and *Crypturus* spp.) are plump-breasted and make capital eating.

Of the rarer birds mention must be made of the great Harpy Eagle or Bairudi (*Thrasaetus harpyia*)

specimens of which are very occasionally brought down from the interior, and the beautiful snow-white Bell-bird (*Chasmorynchus niveus*) whose musical note was at one time common enough in the forests, especially of the North West, though of late years it has shown a tendency to become rare. The jaunty little Cock of the Rock (*Rupicola rupicola*), famous for his nuptial dances, may also be found if you know where to look for him, and the ungainly-looking but remarkably agile Toucans or Bill-birds (*Rhamphastidae*) are a feature of the forest.

THE 'CANJE PHEASANT' OR HOATZIN.

One of the commonest and most startling experiences of bush-life at night is the ghost-like "Who are you?" of the goat-suckers (*Nyctidromus albicollis*, *Caprimulgus nigrescens*, *Nyctibius grandis*), whose gaping bristly mouths find easy prey amongst the numerous night-flying insects. But the most curious form of bird life in British Guiana is the Hoatzin or Canje Pheasant (*Opisthocomus cristatus*) common along the Abary Creek and the Berbice river. The adult, which is about the size of a pheasant and boasts a crest rather like a poor imitation of the head ornament of the hoopoe (*Upupa epops*) has a curious habit of "squatting on its hunkers" like a frog; so much so that it wears its skin into a bald patch at those points. It has a slow and clumsy flight among the Mucca-mucca and low bushes which are its home and on the fruit of which it feeds. The young are remarkable among birds by the possession of claws on the first finger and thumb of the wing-hand. By means of these the chicks are able to climb and crawl with ease and rapidity. This feature (it may be mentioned), though primitive, does not make the Hoatzin "a link with reptiles" as is so often asserted; but the peculiarities of the bird—the unique character of its breast-bone and the possession of eye-lashes, amongst other points—entitle it to the distinction of a sub-order all to itself. The chicks are excellent swimmers and divers; and when they happen to fall from the

overhanging bushes into the stream beneath, quickly scramble ashore none the worse for their wetting.

Special mention should also be made of the humming-birds, nearly thirty species of which are to be found in the colony. Several kinds are to be met with in Georgetown, flitting like flying gems before the flowers. Their charming little nests are sometimes found in gardens. The Emerald and the Grey-throated Emerald (*Agyrtia viridissima* and *Agyrtia leucogaster*) and sometimes the Jacobin (*Florisuga mellivora*) are frequently seen by the keen observer. Very like the humming-birds are the sugar-birds, several species of which inhabit the towns. One is a charming creature, variegated purplish-blue with bright scarlet legs (*Dacni cayana*) and another is similar with faded-yellow legs (*Dacius angelica*).

A final word must be reserved for the beautiful Scarlet Ibis or Curri-curri (*Eudocimus ruber*) which frequents the mangrove bush at the mouth of the rivers and creeks. At certain spots it occurs in such numbers as to give the trees the appearance of being clothed with red blossom.

MAMMALS.

Although British Guiana cannot boast the big game of the Old World, fair sport can be had amongst the larger mammals. The Jaguar or "tiger" (*Felis onca*) is to be met with within quite a reasonable distance of the civilised centres. Occasionally the beast becomes a nuisance on the cattle farms and the back lands of the sugar estates; then a hunt will be organised and the raider shot. Of the smaller cats the Puma or American lion (*Felis concolor*) the Ocelot or Labba tiger (*Felis pardalis*), the Long-tailed Tiger-cat (*Felis macrura*) and the Hacka Tiger (*Felis jaguarondi*) occur, and their ferocity increases in inverse ratio to their size. The Tapir or Maipouri (*Tapirus terrestris*), a most ancient and interesting ungulate, is quite common along the banks of the quieter creeks such as the Abary, and the native Red Deer (*Coassus rufus*) and the Savannah Deer (*Cariacus savannarum*) may be

hunted in the open country and the Wood Deer or or Welbisiri (*Coassus memorivagus*) in the bush. Occasionally a herd of Peccary (*Dicotyles torquatus Dlabiatus*) may be encountered sometimes with embarrassing results. But it is to the scientist rather than to the sportsman that the mammalian fauna of British Guiana chiefly appeals. Such curious carnivores as the South American Fox (*Canis cancrivorus*), the Kinkajou, (*Cercoleptes caudivolvulus*) the Coatimondis (*Nasua rufa*, *N. narica*) and the Crab Dog (*Procyon cancrivorus*); the whole group of the Edentates—so well represented by the Three-toed and the Two-toed Sloths (*Bradypus tridactylus* and *Choloepus didactylus*), the Armadillos and the Anteaters—and the Opossums or Yawarris (the Yawarris are quite a nuisance in the towns); are all of great interest. The colony is the home of the Guinea pigs—a corruption of “Guiana pig”—and these range in size from the ponderous Capybara or Water Haas (*Hydrochaerus capybara*), the largest living rodent, to the slim Agouti (*Dasyprocta aguti*). The puffy-cheeked Labba (*Coelogenys paca*) affords one of the best kinds of bush meat, and with that excellent game bird the Maam is always a welcome addition to the camp larder.

THE HOWLING BABOON.

The monkeys are well represented: the Howling Baboon (*Myctes seniculus*)—another misnomer: for it is no true baboon—which makes more noise for its size than any animal in the world, may be heard near any bush camp startling the dawn with sounds like those of fiends in torment, the Spider-monkeys can be seen along the forest paths swinging from tree to tree, and the pretty little Sackiwinkis and Marmosets are commonly offered for sale as pets in the streets of Georgetown. A charming yellow-pawed variety is a special favourite with ladies. The “organ-grinder’s monkey” (*Cebus apella*) of the London streets also hails from this part of the world.

REPTILES.

It is unfortunate that writers eager for graphic description and careless of unromantic accuracy should be so fond of picturing the South American forests as swarming with reptiles. According to them the trees are festooned with anacondas, poisonous snakes litter every path, and the creeks and water-ways are thick and slab with alligators. As a matter of sober fact snakes of any description are very rarely encountered, and alligators, though common enough, are seldom seen and are never obtrusive. The 'Camoodies,' the constrictor snakes, though often of huge size, are harmless to man if death to the smaller mammals. The 'land camoodie' is *Boa constrictor* and the 'water camoodie' or 'American python' is *Eunectes murinus*. Deaths from snake-bite are practically unknown, as are accidents from any other form of reptile. The commonest poisonous snake is the Labarria (*Lachesis atrox*); then come the handsome Bushmaster (*Lachesis mutus*) and the repulsive Rattlesnake (*Crotalus terrificus*). The group of coral snakes is an interesting one and is well represented in the colony.

The common alligator of the trenches is *Caiman sclerops*, but the 'true' Caiman (*Caiman niger*) occurs on the rivers, where it may reach a length of ten or twelve feet. The edible turtle (*Chelone mydas*) is occasionally caught off the coast and offered for sale in the markets, but its appearance is sufficiently rare to constitute something of an event.

Lizards, of course, are extremely common; the garden lizard (*Anolis* spp.) can be seen everywhere, scurrying over the leaves or jumping from branch to branch of the trees, sunning itself on the palings or racing along the paths, altering its colour the while through all shades of green and brown according to the character of the surface upon which it is resting for the moment. A larger species of a brown colour towards the head changing rather abruptly to a rich green in the hinder half, occurs in many places round the town, and has been seen to prey on its smaller relative. The

pretty little bronze Wood-slave frequently attracts the observant eye as it hunts among the dead leaves. Iguanas are numerous and are esteemed a great delicacy by the natives. They attain a fair size—three feet, perhaps, in length—but in this respect are rivalled by the Salempentas (*Tupinambis negropunctatus*), ugly brutes with an unfortunate appetite for poultry.

AMPHIBIA.

British Guiana is particularly rich in interesting amphibians. The great toad or Crapeau (*Bufo marinus*), exactly fitting Mark Tapley's description of him—"very spotted, very like a particular style of old gentleman about the throat; very bright-eyed, very cool and very slippery"—can be seen after nightfall in numbers on the grassy sides of the Georgetown streets making a hearty supper off the numerous insects to be found beneath the arc-lamps, while the tiny whistling frog (*Leptodactylus ocellatus*), a recent introduction from Barbados, supplies the music for the feast. Many forms of tree-fregs occur, some charming in colour, others remarkable for their size, almost all possessing some interesting peculiarity in their development. Bushmen tell capital stories of the noise some of them make; how one species imitates perfectly the "chug" and rattle made by the paddles of an approaching boat's crew, while another sort croaks "it's a fact" first individually and then in chorus; and any one can hear for himself the purring rumble of an amorous crapeau which resembles nothing so much as the noise made by a distant motor-cycle at full speed. Finally, mention must be made of those aberrant forms the Coecilians, which are found in the colony—they are usually described as 'giant earthworms'—and still await proper scientific investigation.

" INSECTS."

Rich as British Guiana is in the forms of life already mentioned, its wealth in respect to insects is simply surpassing. For the purposes of this article the term 'insects' may be taken in its popular sense

and be made to include all forms of Arthropoda. Many of the spiders are wonderfully beautiful in pattern and colour, others are as repulsive as it is possible to imagine. Common in the houses is the loathsome 'Nancy' spider (*Heteropoda ienatorua*) often with a large, silken, disc-shaped bag of eggs beneath it. Many householders encourage it, alleging that it helps to keep down the cockroaches; some prefer the cockroaches—which after all are a nuisance only in old and badly-kept houses. The Tarantula (*Lycosa tarantula*) occurs in country districts, the huge hairy Mygale, or bird-eating spider (*Avicularia avicularia*) in the bush, where undoubtedly it preys upon small feathered folk such as the humming birds—the loveliest living things in creation and the special glory of South America. Scorpions are seldom seen except in the remote interior, where some fairly large forms exist. A small sandy-brown species (undetermined) occasionally crops up in town amongst old books or papers, but it is quite insignificant. Centipedes are not unknown and although alarming enough in appearance and reputation seem never to do any actual damage except to inexperienced chickens, which sometimes mistake them for a new and fascinating variety of worm and find out their mistake too late. Some very interesting types of Arachnids live in the bush and are brought down by collectors; but these are of scientific rather than of general interest. The tiny red 'bête-rouge'—a larval *Trombidium*—is, however, sure to force itself on the visitors' attention. The irritation it sets up is intense but this can be relieved by ammonia and prevented by the timely application of any form of unguent, such as 'boracic ointment.'

INSECTS PROPER.

Of insects, properly so called, South America possesses an immense number of a bewildering variety of forms and a riotous exuberance of colour. A butterfly common in Georgetown, especially near passion-flower vines, is *Metamorpho dido*. Its colour scheme is simple—green and black—but the grace of its shape,

the delightful lines of its markings and the elegance of its flight make it a real thing of beauty and one which always compels the admiration of visitors. Another lovely creature, reminding one of the European 'Swallow-tail,' is the 'Essequibo moth' (*Cydimon leilus*) which, in the autumn of 1912 occurred in swarms of thousands of individuals. Dozens of specimens—almost all damaged, however,—could be captured any evening round the house lights. When flying free, the full glory of its iridescent black-green wings and emerald markings is displayed to wonderful advantage, and in the collector's cabinet it is scarcely less striking. In mere size the giant *Thysania agrippina* is pre-eminent; its wings have an expanse of more than 12 inches. But it would be hopeless to enumerate here the many insects the visitor may encounter. The best plan for those interested is to visit the Museum or the Biological Laboratory of the Department of Science and Agriculture and see the wonders for themselves. A final reference may perhaps be allowed to the remarkable migratory swarms of butterflies which are occasionally encountered. Millions of yellow butterflies (*Callidryas eubule*)—all males and all flying in one direction—have often been recorded, and the present writer once witnessed a flight of white butterflies (*Appias margarita*) on the lower left bank of the Berbice river which lasted for over three days and could only be compared, during the whole of that time, to a heavy snow-storm. And the extraordinary thing was that all the insects were flying directly out to sea.

ANTS.

It is impossible to enter into details regarding the ants of the colony. They are legion in number, highly complex in their social organization and immensely interesting. The 'Coushie' or 'umbrella' ant—*Atta cephalotes*—is a nuisance especially on citrus plantations but can be kept down by vigilance and carbon bisulphide or calomel. The huge fierce black Munuri (*Dinoponera grandis*) is met with in the bush and the Yackman or

'Driver Ant' pays a visit now and then to the smaller settlements and effects a very thorough spring-cleaning. Termites ("White Ants") are common but not obtrusive. Their depredations consequently have to be carefully watched for and guarded against.

One last word. When buying parrots from the hawkers at doorstep or stelling, remember that the 'Amazon' (*Amazona ochrocephala*), the best talker, has little yellow on the head and dashes of crimson on the "shoulders." The "screecher" (*A. amazonica*) has a yellow face, a blue line over the eyes and green shoulders. The magnificent Macaws (*Ara macao*—scarlet and blue; *A. ararauna*—blue and yellow; *A. chloroptera*—red and blue) make handsome pets and can be taught to speak with expression. The Twa-twa (*Oryzoborus grassirostris*), a small black bird about 5 ins. long with white feathers on the shoulders, is generally considered to be the best of the song birds. It is sometimes confused with the "Twa-twa slave" (*O. torridus*), but as the abdomen of the latter is a dark chestnut there ought to be no difficulty in distinguishing between them. Another bird frequently offered to visitors is the Blue Sacki (*Tanagra episcopus*), of a beautiful pale blue colour with darker primaries. It has no song. The two Icterids, the "yellow plantain bird" (*Icterus xanthornis*) and the "troopials" (*I. crocanatus* and *I. vulgaris*) are among the handsomest of the hawkers' specimens. They are somewhat alike, being a bright yellow with black throats and points. The troopials are, however, the larger and have white bands across the wings. *I. vulgaris* also has a black head and saddle. The "yellow plantain birds" can often be seen wild in Georgetown, but troopials belong to the forest region.

In conclusion it should be mentioned that much work still remains to be done on the precise identification of the animals of British Guiana. The names given in this article are in the main those adopted by the Colony Museum, Georgetown.

III.—ECONOMICAL.

FLORA.

FLORA.

British Guiana is a country full of interest to the botanist. The greater portion of the colony is still untouched by man's hand and at every turn there is something to interest the systematist and ecologist. It is doubtful if more than one-third of the flora of the colony is known, and therefore the object of this short account must be to direct the attention of the reader generally to the vegetation as a whole and to mention some of the commoner plants to be found in the different localities.

It is possible to divide the colony, for the purpose of a consideration of the flora, into regions according to the differences of soil and its formation, and each of these regions possess distinct plant associations. The transition from one region to another is for the most part gradual and is never so abrupt that distinct zones of vegetations are defined.

The littoral portion of British Guiana is formed by a plain of marine alluvium that rises southwards from the sea with a gentle slope. These alluvial flats widen out in the eastern part of the colony as in the western, and some parts are largely under cultivation with sugar-cane, rice, and other products. This marine alluvium also extends for several miles up the shallow valleys of the larger rivers.

THE SEA-SHORE FRINGE.

The vegetation on the mud banks of the sea-shore is similar to that of all low shores of northern South America. The fringe of vegetation consists chiefly of courida (*Avicennia nitida*) which is largely confined to the coasts. The lateral roots of the courida grow upwards into the air out of the swampy soil and water in which the trees grow in order to provide the roots growing in the mud with the necessary air. At low tide these matted masses of roots in many

places resemble vigorous dull-brown asparagus stalks. They form a natural break-water, being well adapted to resist the force of the sea and to prevent the muddy shores from being washed away. Occasional mangroves occur in this sea-shore fringe, but on the muddy swamps at the mouths of the rivers they become abundant. The black mangrove (*Rhizophora Mangle*) is particularly common, and the white mangrove (*Languncularia racemosa*) occurs frequently. In the North Western District there are extensive forest areas of mangroves, and they line the rivers for miles. The mangrove sends out large numbers of aerial roots which extend outwards and downwards to form props or 'stilts' so that the general appearance of mangrove bush is a confused jungle of roots extending from the branches to the swampy mud below.

THE "BINDOREE PIMPLER."

The fruits of the mangrove are worthy of an investigation if that is possible, in order to see how the radicles commence to grow while the seeds are still attached to the branches. These 'young plants' swing backwards and forwards with the breeze and when they fall stick so tightly in the mud that they are not washed away by the tides. In some places on the sea-shore and up the rivers, the dark-green courida and mangrove bush is seen to be interrupted by a lower growing bush of a lighter hue. This is the impenetrable 'bindoree' (*Drepanocarpus lunulatus*), the prickly branches of which float with the rise and fall of the river. Good examples of this plant are to be found, amongst other places, at Enmore on the East Coast, at the southern end of Wakenaam Island and along the eastern bank of the Essequibo opposite Fort Island.

Small tracts of open swampy lands also occur at places along the coast and are usually covered with the giant swamp fern (*Achrosticum aureum*)—a plant which is also to be seen in abundance in low-lying places on the front pasture lands of the sugar estates along the East Coast, together with the bull-

rush (*Typha domingensis*) and the bizzzy-bizzzy (*Cyperus articulatus*).

ALONG THE PUBLIC ROAD.

Of the drier portions of these pasture lands the 'black-sage' (*Cordia Aubletii*) takes charge, while the 'carrion-crow bush' (*Cassia alata*) with bright-green pinnate leaves and spikes of yellow flowers, is perhaps the most striking. The latter plant is common also along the sides of the roads in the alluvial section of the colony, and is often found in extensive clumps. In the trenches at the sides of the roads, and on the sugar estates are to be seen handsome white water-lilies, (*Nymphaea ampla*), beautiful lavender water hyacinths (*Eichornia caerulea* and *E. azurea*) the water lettuce (*Pistia stratiotes*) and the Sacred Lotus (*Nelumbium*).

UP THE RIVERS.

As one proceeds up the rivers, the vegetation becomes very mixed and the numbers of species large. Amongst the most conspicuous plants are the giant aroids—the mucca-muccas (*Montrichardia arborescens* and *M. aculeata*). These are common to all the rivers and are found in low, muddy and shallow places. They can be recognised by their shining, arrow-head-shaped leaves and arum-like flowers, and they often grow to 15-20 feet in height. The Cannaheri or wild cacao (*Pachira aquatica*) and the Cannaheri-balli (*Pachira insignis*) also attract attention by reason of their large projecting tassel-like flowers, the former being of a yellowish hue and the latter a dark red. Their brown fruits—resembling as they do cacao pods—are also conspicuous. The long sprays of red flowers of *Cacoucia coccinea* are common at certain seasons of the year, and other prevalent plants that are commonly noticed are the Trysil (*Pentaclethra filamentosa*)—a leguminous tree with striking yellowish white flowers—and, in swampy places, the Dalli or 'wild nutmeg' (*Myristica surinamensis*) with its peculiar, symmetrical leaf arrangement and its nutmeg-like fruit. The beautiful Wakenaam lilac (*Jacaranda filicifolia*) is often abundant and when in flower is very attractive. This tree sheds its leaves

before flowering and the masses of pale lilac flowers borne from the bare whitish branches render it conspicuous. As the flowers fall the delicate young leaves, of a pale green hue, make their appearance. The Mauni (*Moronobea coccinea*) is common in certain parts of the North Western District and is readily recognised by the deep crimson colour of its flowers. The trees along the banks are covered with a thick drapery consisting of numerous Bignonias with their white and mauve flowers, and *Odontodenia speciosa* with its pretty apricot-coloured blooms. Where the original forest has been cut down and secondary growth has made its appearance, the trumpet tree or pumpwood (*Cecropia peltata*) and the Long John (*Triplaris surinamensis*) are common. The former can be recognised by its straight clean stem surmounted by a crown of whitish-green peltate leaves. The latter is a large tree and at certain times of the year the females, covered with their creamy-white flowers, form prominent and conspicuous objects. In the North Western District and along certain parts of the lower Essequibo river, the rubber-producing species of *Sapium* also occur in abundance in places where the original forest has been cut down for agricultural purposes and abandoned to bush again (so-called 'Mainap'), and when in fruit attract large flocks of parrots.

SILK COTTON AND MORA.

At some distance from the river taller trees are noticed, which tower over the remainder of the vegetation. Of these larger trees, the silk cotton (*Bombax Ceiba*) is the most conspicuous and is very common on the Courantyne side of the colony. The trunk of this tree possesses massive buttresses and often attains a huge size. It is characterised by the huge spread of the whole of its almost horizontal branches, and by the pendent seed-pods which swing with the breeze from the several leafless branches and twigs. When the fruits burst, the surrounding vegetation is covered with a soft down, by means of which the seeds of the trees are enabled, through the agency of the wind, to be

scattered far and wide. From the branches of the silk cotton often hang great numbers of purse-like nests of the bunya or 'mocking bird.' Specimens of Mora (*Dimorphandra Mora*) are often to be seen. They are large trees and their foliage presents many beautiful tints in its different stages of development. It is difficult to describe the beauty of the delicate pinkish-red foliage of the new leaves of the Mora. It may be sufficient to state that at first one is often deceived by mistaking a distant mora in fresh leaf for other beautiful trees in flower, and that the delicate shades of the mora foliage are one of the attractions of those rivers where these trees occur abundantly.

PALMS.

Throughout the whole of the alluvial region palms are abundant, and on account of their great variety and beauty attract attention. Along the banks of the rivers and in the frequent swamps adjoining, clumps consisting of 6 to 12 stems of a very graceful, feathery palm with leaflets of a pale green colour are commonly seen. This is beautiful Manicole (*Euterpe edulis*) which is widely distributed in the swamps throughout the colony. Scattered amongst these clumps of manicole, are often seen stouter-stemmed palms growing singly that resemble them very closely. These are the rayhoo (*Euterpe stenophylla*) which occurs scattered among the manicole along the banks of the rivers, where the ground is comparatively dry. The Æta (*Mauritia flexuosa*) is probably the most abundant of all the palms of Guiana, and is found growing in moist ground, chiefly in the 'floating savannahs' and on low-lying land that is flooded in the wet season. It is occasionally seen in swampy places along the banks of the rivers, and can be recognised by its stout column or stem surmounted by a crown of large, dark green 'split-fan' leaves. From the young unfolded leaves of this palm, the Indians make the tibusiri fibre for their hammocks.

Other swamp-loving palms are the troolie (*Manicaria saccifera*)—the leaves of which are largely used

for thatching purposes—very common in the Pomeroon and North Western Districts; the dahlibanni (*Geonoma baculifera*) a small palm common in the eastern side of the colony and along the Essequibo river (also used for thatching); and the booba (*Iriartia exorhiza*), which grows singly and has curious stilt-like aerial roots. The cokerite (*Maximilliana regia*) is probably the grandest of all the British Guiana palms. It occurs in most parts of the colony, except perhaps on the immediate coast-land, and in all stages of its growth is a striking plant. When young, before the stem is developed, the large feathery leaves rise almost straight from the ground and later when the stem has developed to a great height the leaves resemble huge curled ostrich plumes as they sway gracefully to and fro in the wind. Other palms worthy of mention are the 'pimplers' (*Bactris* spp.), the Awarra (*Astrocaryum tucumoides*), and the Acquero (*Astrocaryum tucuma*).

ORCHIDS.

In the lower reaches of the rivers, orchids are not so conspicuous as they are higher up. As a rule the flowers are smaller. Several species of *Epidendrum*, *Gongora* and *Catasetum* are common, while the red-flowered *Rodriguesia secunda* is to be found in the eastern portion of the colony and the pretty *Oncidium iridifolium* in the North Western District. Among the epiphytes, bromeliads are frequent, and in some places the wild pine (*Bromelia sptcata*) and the 'old-man's beard' (*Tillandsia usneoides*) are commonly met with in large numbers.

WALLABA FOREST.

The littoral alluvial plain is transversed by lines of sand-dunes about 30-40 feet in altitude. These sands consist of white quartz and the vegetation differs considerably from the general vegetation of the alluvial sections. In the central and eastern parts of the colony, these slightly elevated lands are covered with what is known as 'wallaba forest.' The 'soft wallaba' (*Eperua falcata*) and the 'Ituri wallaba' (*E. Jenmani*)

constitute about 40 per cent. of the forest trees on these lands. They are easily recognised by their large hatchet-shaped fruits, which hang pendent from twigs on long cord-like stems. Mora also occurs on these lands and often grows to a large size. Vanilla (*Vanilla planifolia*) is also common in some parts, creeping up the trunks of the trees, but very little fruit appears to be set by natural means.

In the depressions between the sand-dunes occur the characteristic swamps. In the wet season these depressions are practically impassible. The plants found here are chiefly the swamp-loving palms but in the drier parts, ferns, marantas (the mucroo used for making baskets in the colony is obtained from a *Maranta*, *Ischnosiphon Arouma*), and some trees occur. The crab-wood (*Carapa guianensis*) is common and is exploited for its timber and for the oil its seeds produce.

THE WET SAVANNAHS.

The continuity of the forests of the littoral alluvium with the higher undulating forests is interrupted by the swamp-savannah region. These savannahs occupy slightly depressed parts of the flat alluvium and form natural reservoirs of fresh water which are drained by the numerous creeks and tributaries of the main rivers. The forest vegetation bordering these creeks extends into the swampy grass-clad savannahs and therefore the change of vegetation is gradual and not abrupt. Irregular stretches of land covered with forest vegetation are dotted about, as well as inland lakes of open water. Entering one of these savannahs by one of the numerous creeks that drain it, the fringe of forest along the stream shuts off from view the savannah proper, and the characteristic features of the region are not seen until the head of the stream is reached.

A SWAMP SCENE.

The vegetation along the banks of the creek becomes thinner and lower as the swampy region is approached and the monkey apple (*Anona palustris*), with its fruit resembling somewhat the sour-sop, and the white-cedar

(*Tecoma longipes*), with its white flowers, are commonly noticed. Towards the head of the creek the forest is reduced to a single line of diminutive, slender-stemmed white-cedar trees, and the large terrestrial lilies (*Crinum* spp.) are to be seen in bloom here and there, as also are the curious flowers of the sub-aquatic orchid (*Habernaria longicauda*) and the blue and yellow bells of species of *Sisianthus*. As the head of the creek is reached an extensive level expanse opens out, covered for the most part by sedges and strong-growing grasses with the arborescent mucca-mucca scattered throughout. Occasionally aeta palms are seen near at hand, while on the horizon an apparently unbroken grove of these beautiful palms occurs. These savannahs present us with the aeta in all its beauty and on some of the forest-clad islands that are dotted about very fine examples may be noticed, often carrying in their crown numbers of the orchids *Catasetum longifolium* and *Vanilla palmarum* which are to be met with nowhere else. As the boat proceeds, an inland lake opens out to view, or the creek widens and handsome waterlilies (*Nymphaea ampla*, *N. amazonica*) become numerous. In the day-time their flowers are closed, but at night or in the early morning these open stretches of water present a picture that is, to the lover of nature, most attractive. The numerous perfect snow-white flowers of the waterlilies are to be seen on the surface of the smooth, dark-coloured water and between their great flat floating leaves appear the pretty yellow and blue flowered *Utricularias* and the graceful floating shields of *Cabomba aquatica*.

TIMBER FOR EXPORT.

Succeeding the flat, coastal alluvium is a broad belt of slightly elevated, undulating and hilly country. In proceeding up the rivers as the land becomes higher the vegetation becomes taller. In this region are to be found most of the timbers that are regularly exported. Various kinds of kakaralli (*Lecythis* spp.) are common, and are remarkable for their curious hard fruit capsules. Mora is often plentiful

and grows to a great size, whilst in the central part of the colony fairly extensive areas of greenheart (*Nectandra Rodioei*) occur. Along the banks of the smaller rivers and creeks, particularly in the eastern-part of the colony the balata (*Mimusops* spp.) is occasionally be seen, with its high spreading crown of dark foliage.

Between the rivers are often to be found slightly elevated sandy savannah lands forming flattened watersheds. These are locally known as 'musi' lands from the trailing 'bush' called 'musi' that is prevalent on them. Grasses and sedges are strongly developed and a large number of melastomaceous plants occur, while several *Solanums* are common. Small clumps of larger shrubs and trees are scattered throughout these savannahs but there are very few trees of large girth. *Clusias* are very common, and *Curatella americana* is noticed everywhere.

INLAND.

As one proceed up the rivers to the higher lands the forest presents varying features in different parts of the colony according to the nature of the soil. The most noticeable point is the general absence of palms. Species of *Bactris* and *Astrocaryum* do occur in places, and fine clumps of the last mentioned are to be seen in the Essequibo above Rockstone and up the Mazaruni. *Kakarallis* are common and many large moras can generally be seen. Along the Potaro, numerous examples of wallabas with their pendent, flat fruits reaching almost to the water form striking features, and on the banks of the Barima and its tributaries in the North Western District, the scarlet blooms of *Brownea rosa del monte*, the 'rose of the tropics,' and the pale blue flowing spikes of *Petrea volubilis* attract the attention.

The rivers are interrupted by falls and rapids, and representatives of the *Podostomaceae* are to be found growing in the strong current on the rocks. The chief of these is *Mourera fluvialis* which sticks on the bare rock by its base, without any apparent roots. At

high water this plant is entirely submerged, but as the river falls after the heavy wet season its bunches of pink flowers appear above the level of the stream, while its fleshy leaves clothe the sunken rocks where they serve as an elastic but slippery buffer for boats.

THE ISLAND FLORA.

Numerous islands occur in the rivers, and on the larger ones some fine trees are to be found. *Clusias* are frequent, and owing to more light being available on these islands, epiphytes, especially orchids, are much more common than along the river banks. In the forest itself, it is often difficult to distinguish the various trees that occur. The attention is chiefly directed to the numerous species of *Selaginella* and of filmy ferns—*Hymenophyllum*—that occur. The damp atmosphere also encourages the growth of epiphytal species of *Trichomanes* and *Polypodium*.

The savannah at the top of the Kaitour Fall is exceedingly rich in the variety of its vegetation. Many of the plants are very small, and the little 'sun-dew' (*Drosera communis*) literally carpets the ground. The distinctive feature of the plateau is the giant bromeliad (*Brocchinia cordylinoides*) which covers the whole region, while another very striking plant is the tiger-plant (*Billbergia zebrina*.) The *Brocchinia* is so striking as to compel notice even from the most unobservant traveller and is to be found in enormous numbers. In the axils of its leaves, and only there, grows the beautiful *Utricularia Humboldtii*.

In the interior of the colony, large areas of sandstone occur, on which are many hills and mountains. The flora on these areas has many distinctive features though the flora of the true savannahs of the interior is not very well known. Grasses, dwarf shrubs and herb-like plants form the dominant vegetation but some parts are marked by the occurrence of certain localized species. Amongst these, the rosy-flowered *Bonnetia sessilis* is beautiful, and the compact *Stiffia condensata* and *Gomphia guianensis* are frequently to be noticed.

IN GEORGETOWN.

The visitor to the colony can see some of the more common of the indigenous plants in and around Georgetown. But few of these, however, will thrive so near the sea, and therefore the beautiful flora of the capital is composed mainly of introduced palms, trees and shrubs. The largest indigenous trees in Georgetown are the Silk Cotton (*Bombax Ceiba*), the Sand-box (*Hura crepitans*), the Hog Plum (*Spondias lutea*), the Long John (*Triplaris surinamensis*), the Cannon-ball tree (*Couroupita guianensis*), the Wakenaam lilac (*Jacaranda ovalifolia*) the wild cacao, (*Pachira aquatica* and *Pachira insignis*), *Ficus leucosticta* and *Cedrela* sp. The indigenous palms to be found in Georgetown are the Acquero (*Astrocaryum tucuma*) in Russell Street, the Awarra palm (*Astrocaryum tucumoides*) in various places, as well as the 'pimpler' palms (*Bactris major* and *B. flavispina*). The Promenade Gardens and the Botanic Gardens possess many beautiful examples of the native flora. Clumps of manicole palms are to be seen in both gardens especially along the upper portion of the central avenue of the Botanic Gardens, as also are examples of the rayhoo. Growing in the Nursery houses at the Botanic Gardens are large specimens of the aeta and of the troolie. Fine examples of the cokerite palm are to be found in the Botanic Gardens.

Amongst the trees, the most striking is the Cannon-ball tree (*Couroupita guianensis*) with its peculiar, sweet-scented flowers and its brown cannon-ball-like fruits hanging on naked branches up the stem. Fine examples of the crabwood are to be seen in the upper portion of the Central Avenue of the Botanic Gardens, where also are to be found specimens of balata, cannaheriballi, trysil, mora, locust (*Hymenoclea Courbaril*), silk cotton, and cedar (*Cedrela odorata*). On either side of the main avenue drive are plants of cannaheri and cannaheriballi (the wild cacao) while all around the first lake fine specimens of the mucca-mucca, the swamp fern and the black mangrove are growing. Numerous

plants of Wakenaam lilac adorn both the Botanic and the Promenade Gardens, and the 'rose of the tropics' can also be seen. Examples of wallaba are noticeable and some fine trees of the Long John are scattered in the park lands of the Botanic Gardens, while specimens of *Petrea volubilis* and *P. alba* are to be found in almost every garden in the city. In the lakes float numerous examples of water-lilies, Utricularias and water hyacinths, with the water lettuce (*Pistia*), *Salvinia auriculata* and *Azolla carolinensis*. The beautiful *Victoria regia* is to be seen in many situations and attracts immediate attention by reason of its large saucer-like leaves and its handsome white to pinkish-white flowers. In the Nursery houses and along the Calabash walk at the Botanic Gardens numerous fine examples of the indigenous orchids are kept, and there are also some fine examples of the local ferns.

For the student, a Herbarium is available. This contains a very large number of dried specimens of the local flora, to which additions are constantly being made.

III.—ECONOMICAL.

AGRICULTURE.

SUGAR.

The Sugar Industry is by far the most important in the colony, and sugar with its by-products rum, molasses, and molascuit, contribute almost 75 per cent. of the total value of the exports. About 33 per cent. of the wage-earning portion of the population are directly connected with the sugar industry, while if those indirectly connected were under consideration the percentage would be in excess of 50 per cent. of the population.

HISTORY.

The sugar-cane was introduced into the West Indies in 1493, on the second voyage of Columbus, and subsequent introductions appear to have been made by way of Madeira, the Canaries, and Brazil early in the sixteenth century. It is probable that the sugar-cane was introduced into British Guiana from Brazil early in the 17th century, but plantations were not known until 1658, when a Dutch colony was established in the Pomeroon. Sugar from this colony was on sale at Middelburg in 1661. An inferior kind of rum called 'Kiltum' was also made about this time.

The canes were at first crushed between wooden rollers by hand or in a small way by levers bearing on a flat log. The first horse sugar-mill was erected by Jan Doenson in 1664 in Essequibo ; this became the most common mode of extraction where water power could not be obtained. When the coast-lands were taken up wind-mills were introduced, until in 1805 steam engines began to appear, whilst the vacuum-pan was first used in 1830.

THE ESTATES.

The sugar estates are situated on the flat plain of marine alluvium on the northern coast of the colony, and for a short distance along the banks of the larger rivers. Thirty-nine estates were in active operation

during 1911-12, and exported 99,368 tons of sugar, 3,022,831 gallons of rum, 146,740 gallons of molasses and 5,102 tons of molascuit.

The largest area under sugar-cane cultivation on any one estate was 7,275 acres at Plantation Diamond on the Demerara River. The majority of the estates have about 1,000-2,000 acres each under cultivation.

There is now only about one-half of the number of estates in active operation that there was twenty years ago, but the area under cultivation is practically the same and was 68,704 acres in 1911. Keen competition, the necessity of reducing the cost of management, and the concentration of manufacturing operations, have accounted for the reduction in the number of estates, but have resulted in a great improvement in the processes of extraction and manufacture.

A large area of the front lands of the estates has been abandoned from sugar cultivation and extensions are yearly being made further from the coast-line. A considerable area of the front lands abandoned from sugar is being utilised for the cultivation of rice and coconuts.

Cane-farming is carried on by small growers on the East Coast of Demerara, and it is estimated that about 2,000 acres are under sugar-cane for small proprietors.

METHODS OF CULTIVATION.

A very large proportion of the sugar-cane lands of British Guiana is below the level of high tide and therefore extensive sea dams have to be maintained. The estates are laid out in rectangles with numerous canals, drains and cross-drains for the purpose of drainage, transport and irrigation. All the transport of canes to the factory is carried out by water in large iron punts, and many estates also transport their produce by water. The drainage of the majority of the estates is maintained by pumping the water from the trenches into the large drainage trenches which discharge into the sea or river at low tide through sluice gates. A considerable number of estates, however,

obtain all the drainage required by natural outflow into the sea or rivers through sluice gates or kokers at periods of low tide. The sugar lands are mainly heavy clays, and therefore an elaborate system of surface drainage is an absolute necessity. The cross drains make it difficult under the climatic conditions prevailing to work the land with other than hand labour.

It has been found to be necessary, up to the present, for the rows of sugar-cane to run along the beds instead of across them when mechanical or implemental tillage is practised. The result of this method on the heavier types of soils is that adequate drainage cannot be obtained. On the lighter soils of the back lands of some of the estates, implemental tillage is being carried out, while at Plantation Diamond—a river estate—both mechanical and implemental tillage is largely and successfully practised. Nevertheless, the greater portion of the field work of the sugar estates is done by hand. The canes are planted by hand, weeded by hand, trashed by hand, cut by hand, and carried from the field into the punts for transportation to the factory by hand.

LABOUR.

The demand for such a large supply of labour for continuous agricultural operations has made immigration from India an absolute necessity for the successful operation of sugar estates. The sugar industry is largely dependent upon an adequate and readily available labour supply, and further advance would have been made had a more abundant supply of labour been available. In 1911 when the last census was taken, 70,922 or 24 per cent. of the total population was returned as resident on sugar estates.

In 1838 immigrants from India were first introduced into the colony by the energy and enterprise of private individuals, but it was not until 1845 that regular immigration recognised by the Government began. Then 816 were introduced, and an average of 3,650 in the succeeding three years. From 1891-1901 the average importations of East Indian

immigrants were 4,120 per year, and from 1901-1911 the average has been 2,435,

The colony is now divided into Immigration Districts, each in the charge of a resident Agent, while the medical care of the immigrants is under the charge of the Medical Department. Immigrants after their indentures are completed have certain rights to a return passage, but every inducement is offered for them to remain in the colony.

MANUFACTURED SUGAR AND ITS BY-PRODUCTS.

The management of sugar estates has been compelled by economic conditions to become more concentrated, and therefore of late years the factories have been greatly improved and enlarged, one factory now handling the products of areas that formerly were worked with two or three smaller factories. The present factories have six or nine roller mills, with or without crushers, and with or without maceration. The mills have been altered and improved so that very good milling results are now obtained with the seedling varieties of sugar-cane.

Three classes of sugar are manufactured. The greater bulk of the sugar is manufactured as 'grey,' 'dark,' or vacuum pan crystals for the American and Canadian refiners, but some estates manufacture 'yellow crystals' for the United Kingdom. This class of sugar constitutes the well known 'Demerara crystals,' originally the product of the Bourbon variety of sugar-cane. A little white sugar is also made.

Rum is made on most estates; a certain quantity of second molasses is exported; and molascuit is also manufactured.

CAPITAL INVESTED AND COST OF PRODUCTION.

The capital invested in the sugar industry is roughly estimated at £2,000,000. The cost of production varies considerably, but the average cost over a period of years, after deducting value of rum, molascuit and molasses, is in the neighbourhood of 2 cents per lb. for 'dark crystals' polarizing 96°. The

cost of making 'yellow crystals' is higher. The cost of manufacture is now over £1 per ton less than it was twenty years ago. This reduction in the cost of manufacture has been brought about by the concentration of managements and manufactories of various estates and by improvements in the efficiency of the factories themselves.

EXPORTS.

The following tables show the average annual quantities and the values of sugar and sugar-products exported from British Guiana during the quinquennial periods from 1892-3 to 1911-12.

QUANTITIES.

Period.		Sugar. Tons.	Rum. Proof Gallons.	Molasses. Gallons.	Molascuit. Tons.
1892-6	...	106,257	2,003,885	100,852	
1897-1901	...	96,542	4,062,034	357,201	
1902-1906	...	116,859	3,555,057	333,366	6,666*
1907-1911	...	104,961	2,939,623	176,288	8,488
Mean	...	106,155	3,140,357	467,177	15,154

VALUES.

Period.		Sugar.	Rum.	Molasses.	Molas- cuit.	Total.
		£	£	£	£	£
1892-6	...	1,305,989	135,946	24,965	...	1,466,900
1897-1901	...	1,066,376	189,186	11,731	...	1,267,293
1902-1906	...	1,142,284	107,099	11,070	23,679*	1,285,100
1907-1911	...	1,170,399	134,690	11,447	20,300	1,344,783
Mean	...	1,171,262	141,755	14,803	43,979	1,341,019

* Exports of Molascuit first commenced in 1904-5.

DIRECTION OF TRADE.

In the nineties, two-thirds of British Guiana sugar was exported to the United States, and practically one-third went to the United Kingdom, Canada only taking very small quantities.

In 1898 Canada gave a preference to the West Indies of 25 per cent. and this was subsequently increased in 1900 to $33\frac{1}{3}$ per cent. With the abolition of bounties by the Brussels Convention and a surtax of $33\frac{1}{3}$ per cent. on German importations of sugar into Canada in 1903, exports to Canada of British Guiana sugar, in common with other British West Indian sugars, began to increase rapidly. The preferential treatment of Hawaii, Porto Rico, Cuba and the Philippines by the United States also assisted in drawing the exportation of West Indian and British Guiana sugars to the Canadian market.

From that year the exports of sugar to Canada increased until in 1907-8 slightly over 87 per cent. of the total output found its way into the Canadian market. The value of the Canadian market to those interested in sugar in British Guiana was fully stated before the Commission which recently inquired into the possibility of reciprocal trade relations between Canada and the West Indies, and the actual monetary benefit that the sugar industries has derived from Canadian preference was shown to be equivalent to about 11/- per ton.

The following table shows the direction of exports of British Guiana sugar during the past ten years :—

Year.	To United Kingdom.		To United States.		To Canada.	To elsewhere.
	Tons.		Tons.		Tons.	Tons.
1902-3	...	16,327	89,896	13,777	127	
1903-4	...	11,451	45,887	68,328	283	
1904-5	...	17,682	44,633	44,329	72	
1905-6	...	21,040	29,987	65,436	87	
1906-7	...	25,110	38,522	51,217	102	
1907-8	...	12,990	nil.	87,708	39	
1908-9	...	25,563	16,802	72,605	243	
1909-10	...	33,222	15,376	59,572	363	
1910-11	...	22,642	24,334	58,837	139	
1911-12	...	14,454	21,523	63,377	12	

The bulk of the rum is exported to the United Kingdom, the molasses are chiefly exported to Hol-

land and the molascuit is sent almost entirely to the United Kingdom.

DEMERARA RUM.

British Guiana has the largest export of rum of all the West Indian colonies its export of pot-still rums alone being 12 per cent. higher than that of Jamaica. The production of rum has been the subject of investigation in British Guiana on scientific lines for many years past, and as far as the production of alcohol from the sugars present in the wash (wort) it has in many estate distilleries been brought to a condition approaching perfection.

British Guiana rum is produced by a rapid fermentation extending from 36-48 hours by setting up a wash of molasses diluted with water at a density of about 1,060. The wash is set up slightly acid, and in some distilleries additions of sulphate of ammonia in small quantities are made in order to supply readily available nitrogenous food for the yeast.

The distilleries are of three kinds, either consisting of pot or vat-stills, or of pot-stills combined with Coffey and other continuous rectifying stills, or of Coffey stills only. In 1911 there were 28 distilleries of the first kind, 3 of the second and 8 of the last. The coffey or continuous rectifying stills used are of well-known types and are usually built locally, their columns being constructed of colony-grown timber.

Demerara rum is the product of pure yeast fermentation, and has not a high flavour like other rums of slow fermentation where wild yeasts and bacterial organisms are given every opportunity to increase at the expense of the yeast proper.

EXPERIMENTS WITH SUGAR-CANE.

The Government's experiments with sugar-cane were started in 1882, when a collection of the varieties then under cultivation in various parts of the sugar-cane world was commenced, whilst in 1890 experiments were begun in raising canes from seed.

The standard cane, the Bourbon, suffered in the nineties from fungus diseases, and although the planters took every effort to prevent their spread, they had to resort to cultivating introduced varieties and new varieties raised from seed. The experiments with seedling varieties have had for their object the production of new varieties of canes from which, after rigorous selection and testing on experimental plots, the planter might select kinds to suit the special conditions of their plantations.

AREAS UNDER SEEDLING CANES.

In 1899 only about 550 acres were planted in the colony in new varieties, whereas the total area under varieties other than Bourbon for the year 1911 was 46,301 acres equal to 67·4 per cent. of the total 68,704 acres under cultivation. Some of the seedlings now occupy large areas, the Demerara seedling D 625 being cultivated on 23,669 acres and the Barbados seedling B 208 on 8,812 acres.

The average returns from the total areas of all the seedling canes cultivated since sugar-cane returns were instituted by the Board of Agriculture in 1902 has been about 11 per cent. in excess of the average returns from the Bourbon cane over the same period. In a great many instances the seedlings have been cultivated on lands on which the Bourbon cane would not grow, whereas the Bourbon cane has in late years been grown only on land of average fertility upon which it gives fairly satisfactory returns. In some years, on several estates, returns of 30 per cent. more sugar have been obtained from certain new varieties over comparatively large areas over the yield from the Bourbon cane grown on the same plantations.

Experiments with raising seedling canes are also carried out on some estates, in the endeavour to obtain canes suited to the soils and conditions of those estates. Nurseries of seedling canes are found on all estates where comparative trials are made with new kinds of canes before they are planted out in the general cultivation of the estates.

In 1891 experiments were commenced with manures for sugar-cane at the Experimental Fields at the Botanic Gardens. The plots were very carefully laid out with a large number of controls, and these experiments have been continued from that date to the present time. The results of these experiments have been of considerable interest to the sugar planters, and the conclusions arrived at form valuable guides for the manuring of the sugar-cane on the plantations.

Experiments with manures for sugar-cane have been conducted also on several estates. In some instances these experiments were carried out on a large scale, and the results received very careful consideration.

Many other investigations in regard to the sugar-cane and its products have from time to time been carried out, and several are now in hand. A proposal for the establishment of a Sugar Experiment Station and for the extension of sugar-cane experiments and of scientific investigations into the sugar-cane, its culture and diseases has been decided upon. It is hoped that this extension scheme will be in active operation in 1913.

No account of the sugar-cane experiments in British Guiana could be complete without mention of the scientific workers who have been associated with them. The experiments were commenced in 1882 by the late Mr. G. S. Jenman (Government Botanist, 1879-1902) in collaboration with the late Mr. E. E. H. Francis (Professor of Chemistry and Government Analytical Chemist, 1879-1889). From 1889 they were carried on by Mr. Jenman, and Professor J. B. Harrison, C.M.G., until the death of the former in 1902, and since that date they have been considerably enlarged in their scope under the direction of Professor Harrison, now Director of Science and Agriculture, with the advice of the Sugar-cane Committee of the Board of Agriculture.

RICE.

The Rice Industry of British Guiana has made enormous strides during the past few years and now the supplies not only meet the local demands but also a very considerable proportion of the wants of the West India Islands, and French and Dutch Guiana.

HISTORY.

Rice appears to have been first introduced from Carolina early in the eighteenth century during the occupation by the Dutch, although another importation is recorded about 1782, during the French occupation from the French colony of Louisiana. The possibilities of rice cultivation especially as food for the slaves was realized by Governor Gravesande and by the end of the century were so well known that runaways or 'bush negroes' commonly grew it in the neighbourhood of their hiding-places. Bush expeditions always used to destroy these cultivations, and in 1810 it was reported that there was such a large quantity being cultivated at the back of Mahaicony that a special expedition to destroy it was recommended. In 1813 when supplies from the United States were stopped, it was suggested that British Guiana should grow larger quantities of rice, but nothing seems to have been done.

The Hon. W. Russell records that in 1848, he came across rice being cultivated in Berbice by 'Timini' Africans. In 1853, it appears that some paddy was introduced from Georgia, and grew very satisfactorily. In the same year a company was formed in Georgetown for the cultivation of 150 acres of rice at Plantation Vive-la-Force on the Demerara River, but this venture did not prove successful. Several other attempts were made with cultivations of rice in different parts of the colony, but many

failed from want of knowledge and also from lack of water.

In 1865, encouragement was given to some coolies from the hill districts of India to cultivate rice on the West Coast, Demerara, and some 16 acres were grown with very satisfactory results. The industry expanded until about 1870, but subsequently the area under rice became reduced until in 1872 only a small amount of cultivation was carried on in the Abary district by East Indian proprietors. Later, however, encouragement was given to rice cultivation in Essequibo, and in 1886 over 200 acres were under this crop on the lower Essequibo coast. Small areas were also being cultivated in the Mahaicony, Abary, and Canje Creek districts. From 1886, the industry gradually grew and in 1898 the area under rice was returned as 6,500 acres; but in 1901 a shortage of the Indian crop produced greatly enhanced local prices and the acreage increased to 19,000 acres. In 1908, the area under rice reached its maximum being nearly 38,000 acres. In 1911, the area was returned as 36,000 acres. The area under rice is cultivated chiefly by small farmers. Some of these rent their lands from the larger land-owners, while others cultivate lands owned by themselves.

LAND AND LABOUR.

There are large areas of land in the colony eminently suited to the cultivation of rice. The flat heavy coastal lands that have been abandoned from sugar-cane form excellent rice lands. They are low-lying and through constant cultivation to the same depth in sugar-cane culture have an almost impervious sub-soil. In many districts irrigation could readily be carried out, and the Government have recently passed a 'Polders Bill' whereby it will be made easy for groups of contiguous land-owners to have schemes for irrigation devised and carried out on the co-operative system.

The development of the rice industry has been due almost entirely to East Indian settlers. Of late

years the authorities of sugar-estates have given every encouragement to rice-growing and large areas of abandoned sugar lands near the coast are rented to East Indians who have decided to remain in the colony with their families after their term of indenture expired. These, during such times as they are not engaged with their rice crops, are employed upon the estates. As the cultivation of rice has been fairly profitable in recent years some of the black population have become attracted to the industry.

An American Company has recently acquired 5,000 acres of flat Crown lands in the Abary district for the cultivation of rice by machinery on a system similar to that adopted in the rice-growing districts of the United States of America. A very large area has been drained, tilled and planted with imported seed.

FIELDS.

By comparing the total yields of rice produced in the colony, the rapid expansion of the rice industry is seen. In 1899, the yield was 5,000 tons of paddy, equivalent to 3,600 tons of rice, while in 1908 the yield was 51,600 tons of paddy, equal to 38,000 tons of rice. The average yield per acre has improved in recent years as the following table shows, and it is thought that this increase has been due to a greater knowledge of rice cultivation under the conditions prevailing in the colony and also to the introduction and distribution by the Board of Agriculture after careful experimentation of improved varieties of rice :—

Years.				Average yields of paddy (unmilled rice) per acre.
				cwts.
1898-1902	...	...	...	20·7
1903-1907	...	...	...	23·3
1909-1911	...	...	...	23·3
Mean 1898-1911 ...				22·4

Rice was first exported from British Guiana in 1902-3 when about 5 tons, of a value of £60, left the colony; in 1908-9 the export was 3,120 tons, of a value of £59,000, while during 1912 the export was 2,985 tons, valued at £40,163. The greater part of this rice is being exported to the West India Islands and to French and Dutch Guiana, and the British Guiana 'long-grain' rice is now preferred in these markets. The effect that the local production of rice has had on the quantities imported into the colony in recent years has been very marked. In 1899 the quantity of rice imported into British Guiana was 11,300 tons, while in 1911 the imports had fallen to 354 tons. Rice, as a rule, is shipped in bags of 170 lbs. each. the average export value being 16s. to 17s. per bag.

VARIETIES GROWN.

The 'long-grained' varieties are those that meet with favour in British Guiana. The earlier introduced varieties naturalized under the names of 'Creole' and 'Berbice Creole' are the varieties most largely cultivated, but over 200 of the best varieties of rice cultivated in other rice-growing countries have been submitted to careful competitive trials as to their yielding powers under conditions similar to those existing on the coast-lands of the colony by the Department of Science and Agriculture. From these varieties three have consistently given better returns than the Creole varieties, and large quantities of seed-paddy have been distributed free to numerous growers through the principal mills of the colony. Further selections and crosses are being made year by year, and the selected varieties are tried in trial plots against the standard kinds. The results of these experiments are most encouraging. Some of the selected varieties raised during the past three years show, on small plots, indicated increases in yields of over 30 per cent. over the standard varieties, and are now being grown experimentally over extended areas.

MILLS.

Several large rice mills were established in different parts of the colony as the industry expanded, and there are a very large number of small ones scattered throughout the rice districts. From trials made, it has been ascertained that paddy should give about 60-65 per cent. of its weight of clean rice. Two kinds of rice are made at the mills, the one a 'brown' rice in which the paddy is steamed before it is passed through the mills, and the second a 'white' rice. Brown rice is more nutritious than the white rice. No polishing of rice is carried out. Rice-meal is also made and in 1911, £2,498 worth was exported. 'Colco,' a cattle food made from rice husks and rice 'ends' soaked in molasses, is also exported.

IMPROVED METHODS.

The methods of cultivation generally in vogue are the Eastern methods. Nearly the whole of the work is done by hand labour. Primitive ploughs and harrows are employed in many districts and cattle are sometimes used for the trampling out of the grain, while winnowing is usually accomplished by hand. Improvements in the methods of cultivation are being made, and increased returns have resulted. The cultivation of rice on a large scale by implements in the Abary district is full of interest and is being watched very closely by commercial men, for if the venture is successful there is every reason to believe that much larger areas of land will be brought under rice cultivation, and British Guiana, which is at present the greatest rice-producing country in South America, would become an important factor among the rice-producers of the world.

COCONUTS.

Coconuts thrive well on the coastal lands of the colony, especially where the land is more or less of a sandy nature and a considerable expansion of this cultivation is taking place.

The coconuts growing in the colony are scattered, being owned chiefly by small growers, but there are a few fair-sized coconut estates. Reefs of light sandy loams exist on the Corentyne Coast, along the East Coast of Demerara, and in Essequibo, where coconuts flourish, and even on the heavier coastal lands they grow satisfactorily. They do not grow so well nor yield so satisfactorily on river lands away from the coastal region nor on the pegassy-clay lands.

With the recent increase in the value of coconut products, more attention is being paid to the cultivation of this palm, and many of the coastal lands which have been abandoned from sugar-cane cultivation are now being planted with coconuts.

AREAS.

The area planted with coconut has been steadily increasing, but during the past few years there has been much greater activity in this cultivation. The following acreage returns of the Board of Agriculture show the advance that is being made :—

1904-5	...	...	... 5,140 acres.
1905-6	...	...	... 6,560 "
1906-7	...	...	... 6,700 "
1907-8	...	...	... 6,828 "
1908-9	...	...	... 8,315 "
1909-10	...	...	... 9,466 "
1910-11	...	...	... 9,761 "
1911-12	...	...	...12,236 "

A large proportion of the 12,000 acres under coconuts in the colony is still young and has not yet come into bearing. There are large areas of land in the colony suitable for coconut cultivation

—a cultivation that with care and attention yields handsome profits.

The exports of coconuts are at present very small in relation to the number of acres planted, as the major portion of the nuts are utilized in the colony for the preparation of coconut oil and of cattle food. There is a very large consumption of coconut oil, especially among the East Indian section of the community and the locally prepared product has gradually displaced the imported coconut oil. During the past four years, however, the exports of coconuts have been increasing. This is undoubted due to the enhanced value of coconuts in the world's markets, which has rendered the exportation of nuts slightly more profitable than the preparation of oil for local consumption.

The following table shows the annual average exports during quinquennial periods since 1892-11 :—

Years.				Average Annual Exports.
1892-1896	...	...	...	80,374
1897-1901	...	...	...	21,892
1902-1906	...	...	...	187,305
1907-1911	...	...	...	526,901

During the year 1911-12 the export of coconuts was 1,517,418 a number in advance of any previous year's export.

Coconuts are chiefly exported to the United States but small quantities are also shipped to England and Canada.

A small quantity of copra is made in the colony, the export during 1911-12 being 1,649 cwts. This copra is the ordinary grade used for oil purposes, principally in soap manufacture, and is mainly sun dried, although an attempt has been made at artificial drying. Improvements in this direction are about to be made and it is expected that when artificial driers are introduced that the quantity of copra manufactured will be considerably increased and the quality

improved. For the successful manufacture of copra on a comparatively large scale, in a damp climate, artificial driers are essential and should prove profitable investments.

COPRA AND OIL.

As previously stated, the majority of the coconuts produced are used for the manufacture of oil for local consumption. This is generally carried out in a crude manner. For obtaining the oil, open coppers are generally used and the returns are therefore not what they should be. There are a few oil plants in the colony and they are giving satisfactory returns. It is anticipated that in a short time more modern machinery will be introduced, and better returns obtained.

There is no refining of the oil, but it is commonly settled or strained.

CACAO.

The cultivation of cacao is carried out on some of the river lands of the colony. There are a few fairly large estates, but the majority of the cacao cultivations are small. The lands on which cacao flourishes best are the lighter lands on the lower reaches of the rivers, where good drainage to a depth of three to five feet can be obtained. Cacao is growing very well on the lands of the Berbice and Demerara Rivers, while its cultivation is also carried on along the banks of the Essequibo and the Pomeroon, and in the North Western District. There are large areas of land in the colony that are suitable for cacao growing, and a great increase in the cultivation of this product is possible.

Some of the cacao estates are of fair age, but there are also considerable areas under young trees that have not yet come into bearing. The Government have an experimental area of cacao at Onderneeming, Essequibo; where from selected trees of high yield and good quality seeds are obtained for propagating purposes and increasing numbers of promising cacao seedlings are being supplied at low cost. Experiments with cacao were commenced in 1900 at Onderneeming. They have proved of value to the cacao cultivators in the colony as indicating in what directions improvements in their cultivation can be made.

The Board of Agriculture obtain annually through the Commissaries returns of the acreage under the various economic products throughout the colony, and the following figures have been obtained in connexion with cacao cultivation :—

1903-4	...	...	...	901 acres.
1904-5	...	...	...	1,460 „
1905-6	...	...	...	2,111 „
1906-7	...	...	...	1,750 „
1907-8	...	...	...	1,832 „
1908-9	...	...	...	2,181 „
1909-10	...	...	...	2,223 „
1910-11	...	...	...	2,016 „
1911-12	...	...	...	2,127 „

These returns show the area as being less than is actually known to be the case through owners in some instances describing parts of their young cacao cultivation as being under ground provisions, with which products young cacao is usually planted. There appears to be steady planting of cacao going on in several districts, but as there are large areas of land suitable for this crop more rapid development in this industry is to be expected. Planting cacao requires at the commencement command of more capital than small farmers usually possess and therefore progress has been slow. With the establishment of an agricultural loan bank it is expected that larger areas will be planted up with this crop. Cacao may produce small crops in the fourth and fifth years but it is not until the sixth year that any appreciable return can be expected. This wait requires that the grower shall have a certain amount of capital, as annual expenses in regard to drainage and cultivation have to be incurred. Provision crops can be satisfactorily grown during the first three years of the growth of the cacao and sometimes may bring in returns large enough to cover a large amount of the cost of weeding and other cultural operations.

Practically the whole of the cacao of British Guiana is fermented for three or four days and is then sun dried. One estate possesses an artificial dryer and several proprietors are contemplating adding others. The fermenting boxes are generally well made and great care is usually exercised in fermenting and curing the beans.

British Guiana cacao is of high quality. Practically only the Criollo and Forastero varieties are cultivated and the beans are large. When exported the cacao usually fetches a good price and this is mainly due to the care in fermenting and curing, British Guiana cacao contains slightly higher proportions of alkaloids than other cacaos which may help to keep the prices relatively higher than some other West Indian cacaos.

The great bulk of the cacao produced is required for the local demands of the colony, and the exports

are therefore but small. The local demand for cacao is steady and very fair prices are generally realized. The following table shows the annual average quantities of cacao exported from British Guiana during quinquennial periods from 1893 to 1912 :—

Period.	Average Annual Export. lbs.
1893-7	533,514
1898-1902	84,517
1903-1907	105,236
1908-1912	84,517

Practically the whole of the cacao is shipped to the United Kingdom, but in 1909-10 11,000 lbs. were sent to the United States.

COFFEE.

In the early part of the nineteenth century British Guiana exported considerable quantities of coffee, but from 1846 no exports of any importance have been made. About the time of the abolition of slavery, the gradual abandonment of coffee cultivation took place, and at the present time the quantity grown barely meets the local demand. The coffee grown in the County of Berbice used to have a very high value, and even now there are times when small quantities of British Guiana coffee are exported to meet special markets.

There are large areas of low-lying lands in the colony on which coffee grows splendidly. Many of the river lands yield good crops, and coffee often thrives on those river lands that are not well suited for the cultivation of cacao, and therefore cacao and coffee growing is often practised on the same property. In the Pomeroon district there are some excellent cultivations of coffee, and the returns are on the whole satisfactory, whilst other thriving coffee estates are to be found along the Berbice and the Demerara Rivers. The area under coffee increases but slowly, as there is frequently a limited supply of labour in the coffee districts and the prices for coffee have of late been frequently low.

The following are the acreage returns obtained by the Board of Agriculture :—

1903-4	...	...	...	...	718 acres.
1904-5	...	...	...	...	718 "
1905-6	...	...	...	...	1,320 "
1906-7	...	...	...	...	1,320 "
1907-8	...	...	...	...	1,097 "
1908-9	...	...	...	...	1,431 "
1909-10	...	...	...	...	1,207 "
1910-11	..	...	...	...	2,546 "
1911-12	...	...	...	...	2,838 "

As in the case of cacao, the increases in area are not shown in these returns, but it is known that

quantities of young seedlings are being planted out, while but little, if any, coffee land has been abandoned in late years. Young coffee is sometimes returned as being under provisions.

Recently the prices for coffee have improved and new areas are being planted up. The Robusta and Liberian varieties are now in favour for planting and there are reasons for believing that the returns from coffee cultivations for the next five years are likely to be more profitable than during the past decade. Large numbers of selected seedlings are sold annually by the Board of Agriculture through the Botanic Gardens, and the demand is rapidly increasing.

Experiments with coffee cultivation have been carried out at Onderneeming since 1904, when the old coffee fields were drastically pruned and intensive cultivation was commenced. The yields have gradually increased until now they are nearly four times what they were when the experiments were commenced.

Experiments are also being carried on with recently introduced varieties in order to ascertain their relative values when compared with the Arabian and Liberian kinds. Experiments have also been commenced with coffee at the Experiment Stations in the North Western and Pomeroon districts.

Kola has been planted on the coffee and cacao estates, and flourishes on lands suitable for their cultivation.

RUBBER.

The cultivation of Para rubber has been experimented with by many of the sugar estates in different parts of the colony, a few small rubber estates have been established in recent years, and rubber is being grown in conjunction with cacao and coffee in several districts. Satisfactory progress has been made by Para rubber on the Berbice, Demerara, Essequibo and Pomeroon rivers and in the North Western District. The Government, being convinced of the suitability of very large areas of the colony for rubber-cultivation, have established plantations of rubber producing trees at experiment stations in different districts of the colony in order to ascertain the rate of growth, the best cultural methods and the yields of the different trees. The results obtained are of considerable value and should be carefully studied by all prospective growers. The experiments so far have demonstrated that the true Para rubber (*Hevea brasiliensis*) grows vigorously almost in every situation in which they have been tried, outside the flat coastal region.

Para Rubber grows the best on well drained flat lands along the banks of the rivers and also upon the lower slopes of the hills. It is estimated that there are 10,880,000 acres of readily accessible lands of which fully 9,000,000 acres are unalienated from the Crown. Of this vast area a very large proportion is eminently suitable for the cultivation of Para Rubber.

The forest region of British Guiana resembles closely those regions of Brazil where the *Hevea brasiliensis* grows indigenously. This forest region is a portion of the great tropical rain forest of the South American continent where dampness prevails and vegetation is luxuriant. *Hevea brasiliensis* revels in a humid atmosphere and the progress that the young cultivations of Para rubber have made in the colony is only what

is to be expected when it is recognised that the climatic and general conditions are so like those of the natural habitat of the plant in Brazil.

Through the enquiries of Mr. (now Sir) Everard im Thurn and the late Mr. G. S. Jenman it was ascertained in the early eighties that the rubber used by the Guiana Indians was obtained from species of *Sapium*. It was not until 1905, however, that the cultivation of these rubber-producing *Sapiums* was undertaken. These plants grew vigorously and promised well, they grew very well in low-lying rivers lands, particularly in the North Western District. In all about 500 acres have been planted with these trees, but the tapping experiments that have been carried out are not encouraging, with the result that land put into rubber is being planted exclusively with the Para rubber (*Hevea brasiliensis*).

The area under rubber cultivation is steadily increasing. The Board of Agriculture returns show that the area returned as being under rubber in 1907-8 was 416 acres while in 1911-12 the acreage was 2,259 acres. Fully 1,700 acres of this area are planted with Para rubber, the greater part of the remainder being under the indigenous rubber-producing species of *Sapium*. The demand for Para rubber seedlings is keen and it is confidently expected that the area under rubber during the next few years will be very greatly increased, as considerable activity is being evinced in the colony in planting rubber.

Several Para rubber trees that were distributed from the Botanic Gardens in 1897-1899 have grown well, and some of these trees, together with some trees of lesser age, are seeding in the colony and the seeds are all being carefully collected and sown. For the supply of seeds for expansion of the cultivation of rubber, however, the colony will for some years have to depend upon supplies from the East.

During the last four years, the Government have imported over a quarter of a million seeds, and have obtained an average germination of nearly 80 per cent. The plants raised therefrom have been sold at cost

price to cultivators. During the past three years the demands have greatly exceeded the supply and the Government have accordingly increased their indents for seeds.

Tapping of Para rubber has been commenced on two estates on the Demerara river, one on the Essequibo, one in Berbice and at the Experiment Stations at Onderneeming and Issorora. The yields have been satisfactory and the product is of good quality. Some British Guiana rubber was valued at the top price of the market in April, 1910, and at the International Rubber Exhibition held in London in 1911, a sample of rubber from an estate on the Demerara river was awarded the silver cup for the best sample of West Indian plantation rubber. At Issorora Experiment Station in the North Western District over one-fourth of the total number of Para rubber trees at four years of age were of sufficient size to be tapped and the yields are decidedly encouraging.

COST OF CULTIVATIONS.

On flat lands, which have to be thoroughly drained and also empoldered to prevent flooding at high spring tides, the cost, including application and survey fees, superintendence and purchase of plants, is estimated to be from \$65-\$70 (approx. £13-£14) per acre during the first year and from \$25-\$30 (about £5-£6) per acre in subsequent years, but on higher land where the initial expenses of drainage are not so heavy the cost during the first year could possibly be reduced to \$48 (£10) per acre.

None of the rubber estates have so far complained of any scarcity of labour for their operations and it is thought that sufficient labour will be available for the next five years, but it is thought by many that with the advance of the industry indentured labour may have to be obtained from the East on terms similar to those pertaining to the East Indians indentured on sugar estates.

LIMES.

The cultivation of limes in British Guiana is still in the experimental stage. Limes grow remarkably well on the lighter soils of the colony if they are protected from the full force of the wind. On the light, almost sandy, soils of the Essequibo Coast they are growing excellently, as also on the lateritic soils of the Essequibo River, while cultivations are also being established in the county of Berbice. In the interior of the colony lime trees are to be found flourishing around the various settlements, where they bear large crops of fruit of high quality.

There are large areas of loose, friable land that are admirably adapted to the cultivation of limes, and there is an enormous extent of ferruginous lateritic soils in many parts of the interior of the colony on which this crop can be successfully grown. Within recent years a company of some of the largest users of lime products has acquired land in the colony for the cultivation of limes, and the progress made so far is distinctly encouraging. Other plantations of limes are being commenced.

Efforts are also being made to induce the smaller land-owners to take up the industry.

There is a large area of land on which they grow satisfactorily still available, the lime trees are generally free from diseases and insect pests, and the cultivations that have already been commenced show every sign of satisfactory progress. Up to 1911 over 650 acres had been planted with limes in the colony.

The limes produced are large juicy fruit, and their acid content is satisfactory. There is no difficulty in obtaining good fruit for seed purposes as selection is now being paid attention to. Seedlings are readily raised, and after planting out need little attention if cultural and weeding operations are carefully carried out.

Some citrate of lime has been made during the past four years from limes purchased from small growers, but its manufacture has recently been stopped until larger areas have come into bearing when up-to-date factories are likely to be erected.

FRUITS.

In those sections of the colony where cacao and coffee flourish oranges, grape-fruit and other citrous fruits grow well and yield well flavoured fruit in abundance. Scale insects and other pests are not very troublesome and the fruit is generally of a clean, bright appearance. Some oranges are exported to the West India Islands, but the greater portion of the citrous fruit goes into consumption locally.

Mangoes flourish and give very heavy yields, on the better drained parts of the coast-lands. There are two varieties commonly grown of which the "Buxton Spice" is by far the finer fruit and considerable numbers are exported to the West Indian Islands. A large number of fine flavoured grafted mangoes are growing at the Botanic Gardens, Georgetown, and a considerable number of these better varieties are becoming distributed throughout the colony.

Pine-apples grow well on the lighter river lands. There are several varieties commonly grown and some are of excellent flavour.

Bananas grow the best on the lighter river lands and on the back lands of the sugar estates and villages, but do not thrive well on the wind-swept heavier coastal lands. The possibilities of the colony for the cultivation of bananas have been under careful consideration from time to time, but it is now generally held that neither the labour conditions nor the soil of the most easily accessible lands are favourable for the production of bananas on a sufficiently large commercial scale. If facilities offered for the rapid transport of the fruit and for placing it upon the market it is certain that suitable fruit for export could be grown on the lighter, well sheltered lands which lie at distances of from ten to twenty miles from the coast-line.

PROVISIONS.

Large areas of provision crops are under cultivation by small farms. Plantains, casava, corn, yams, sweet potatoes, tannias and eddoes are principally grown. The greater portion of these crops are used locally and very little export takes place.

Some of the low-lying lands are well suited to the production of plantains, and with good cultivation excellent crops are obtained. The plantains are generally large and of good flavour. They form one of the staple articles of diet of the labouring population.

Casava is grown throughout the colony and is the staple article of diet of the Aboriginal Indians. Several varieties are grown, and in many localities yields of 6 to 8 tons of tubers per acre are obtainable in favourable years.

FIBRES.

In the earlier parts of the last century cotton formed an important article of export. This cotton was obtained from the varieties of perennial tree-cottons which are able to withstand the detrimental effects of the meteorological conditions of the coastal lands. Periods of excessive rainfall, frequently followed by more or less severe drought, seriously affect the yields of introduced cottons and the quality of the product. Trials have of late been made with Sea Island, Egyptian, Caravonica and other varieties without success, while it has been demonstrated that the indigenous hardy tree cottons give comparatively small yields. Experiments have been made with crossing the indigenous varieties with the more delicate, heavy-yielding imported kinds in the hope of developing a cotton that can be successfully grown on the coastal lands of the colony.

Crowa fibre is prepared from wild Pine-apple which is found scattered along the lower reaches of the rivers and in the far interior. It is used by the Aboriginal Indians for making hammock ropes. The fibre is a fine strong one of good bright appearance, but attempts at cultivation have not been successful owing to its cost and the difficulty of extracting the fibre from the leaves. Sisal hemp is being cultivated on one estate situated on the Mazaruni River and over 200 acres have been planted. Machinery has recently been installed for the extraction of this fibre. This plant grows well on the coastal lands of the colony and there are possibilities in the development of its cultivation in many parts.

PASTORAL INDUSTRIES.

There are very large areas of coastal lands well adapted to pastoral pursuits. Cattle-raising is carried out on pasture lands in front of the sugar estates and on the coastal swamp savannahs. The cattle are on the whole of a fair size and thrifty. Through lack of proper drainage much of the pasture land in the colony becomes swamped in the wet season while not infrequently a drought occasions a lack of suitable water for drinking purposes. If proper drainage of the pasture lands was carried out and arrangements made for adequate fresh-water supplies for drinking purposes, considerable development might be made.

Cattle are regularly exported to Dutch Guiana, 821 being sent over in 1911-1912.

There are very extensive savannah tracts in the far interior on which at present cattle are being raised. These are exported to Brazil as they cannot be brought to the British Guiana coast. With the provision of suitable transport facilities it is possible that this region may become an important cattle-raising section of the colony.

Horses are raised in some numbers on the plantations and farms of the coastland. There is, however, the possibility of considerable development in this undertaking when suitable opportunities offer for ready sale.

The number of cattle in the country in 1911-1912 was estimated to be 81,500, the number of horses 2,650, sheep 19,150 and pigs 17,000. The Board of Agriculture have endeavoured to improve the quality of the stock in the colony by the importation of pedigree stallions, bulls, rams and boars for stud purposes. They also maintain a small stock farm at Onderneeming from which stock is sold periodically.

III.—ECONOMICAL.

FOREST INDUSTRIES.

BALATA.

The balata collecting industry, as judged from the value of the exports, is the third most important industry of British Guiana. The trees from which balata is obtained are to be found growing all over the Colony particularly on the lower lands along the banks of the smaller rivers and creeks. They are perhaps more abundant in the county of Berbice, but large forests also exist on the upper Essequibo river. The trees may be found scattered throughout the forests or they may occur in reefs, composed practically of balata alone. In the county of Berbice especially in the Canje district, the balata collecting industry has been fairly established for the past thirty years and practically all the male inhabitants in this district are engaged in it. They go into the forests during the collecting seasons and return to their homesteads on the banks of the Canje Creek in the off-seasons. The demand for balata has greatly increased during recent years and its value is steadily advancing. With the increase in value, search has been made in the far interior districts and at the present time some of the best shipments are collected from the upper reaches of the Essequibo river.

EXPORTS.

The first sample of balata from British Guiana was sent to London in 1859. In 1862, Sir William Holmes, the Commissioner who represented British Guiana at the International Exhibition in London of that year, brought the substance into prominent notice. Samples were submitted to several manufacturers for examination, the merits of balata were recognised, and a demand was created. In 1865 over 20,000 lbs. were exported. From that year, however, the trade fell off until 1874, but subsequently gradually recovered and in 1888 a very large increase in the exports took place, as

much as a quarter of a million pounds weight being exported. The condition of the industry improved up to 1907, when exports increased enormously.

During the financial year 1908-9, the maximum export of 1,090,405 lbs., of a value of £98,128, was recorded, but there are reasons to believe that this export will be exceeded in the future. The export during the year 1911-12 was 1,101,593 lbs. as compared with 1,162,588 lbs. exported in 1910-11.

The following table shows the exports, in five-year periods, of balata from British Guiana since 1893 :—

Period.	Total for 5 years.	Average Export per year.	Average Value per year.
	lbs.	lbs.	£
1893-1897	1,133,123	226,625	12,105
1898-1902	2,009,783	401,956	21,955
1903-1907	2,488,951	497,790	46,186
1908-1912	5,376,079	1,075,216	110,465

The exports of balata from British Guiana are chiefly to the United Kingdom, but increasing quantities are now being shipped yearly to North America. A good demand for balata now exists in the United States and it is possible that the exports thither will increase. In 1904-5, the export to the States was only 9 per cent. of the total, while in 1911-12 it had increased to 15 per cent.

METHODS OF TAPPING.

The tapping of balata trees is done by means of a cutlass, incisions being made not more than $1\frac{1}{2}$ inches wide, about 10 inches apart, in a "feather-stitch" pattern up the trunks of the trees. Tapping is begun at the base of the tree and the cuts at the first tapping are made to a height of 12-15 feet but subsequently are often made up the trunk to the height of the principal branches. The latex runs zig-zag from cut to cut down into a calabash* fixed at the base of the

* Obtained from the fruit of *Crescentia Cujete*.

tree. The latex is collected from the calabashes into gourds (goobees)* or kerosine tins and then it is taken to the camp where it is poured into shallow trays (dabrees) which hold from 5 to 30 gallons. The latex congeals in these trays and the balata is taken off in sheets, successive sheets being removed until the trays are empty with the exception of the mother liquor. These sheets are hung up first over the dabrees to drain and then in a roughly constructed drying shed. When dry they are despatched to town for transshipment. The labourers are paid by results according to the amount of balata collected.

The yields per tree vary considerably, the flow being affected by changes in meteorological conditions. Trees give at the first tapping an average of 1 gallon of latex each, equivalent to about 5 lbs. of dry balata.

The cuts made in the bleeding of balata are stated to take 4 or 5 years before they are entirely healed and as no tree may be retapped before the incisions are completely healed that period has to elapse before retapping can be done. Subsequent tappings are said not to yield as well as the first ones.

LICENCES.

For the purpose of the administration of balata collecting licences, the colony is divided into two belts a more easily accessible northern portion, and a less accessible higher hinterland. The portions are then divided into sections, and licences are issued for the purpose of collection of balata and rubber from these sections. A separate licence is issued for each section.

The major portion of the easily accessible lands and a fair proportion of the more interior districts have been leased for the purpose of collecting balata and rubber. The licences are issued by the Government for a term not exceeding 15 years, or during His Majesty's pleasure.

Applicants must give the Commissioner of Lands and Mines a satisfactory security. Licences are issued

* Obtained from *Lagenaria vulgaris*.

for collecting only, and do not confer the right of planting any product, while the Government reserve to themselves the power to cancel any collecting licence if the land is required for agricultural or mining purposes. Full particulars in regard to terms and conditions under which licences are issued for the collection of balata, rubber and similar substances are given elsewhere in the book.

No balata tree is allowed to be bled which does not measure 36 inches in girth at 4 feet from the ground. Trees may be bled on only one-half of their girth at any one time, and no tree can be retapped until the previous incisions are completely healed. For bad work or contravention of the conditions under which the licence is issued the licensee is held responsible, but he is empowered to, and expected to prosecute any offending employees. The Government have recently appointed forest rangers to assist the Land Officers in inspecting the work of balata collectors.

THE BLEEDERS.

The collection of balata is done by black or coloured labourers and these have to be registered before they can be employed. They usually obtain advances of money at the time of registration for the purchase of provisions and the implements likely to be required. On the tract a suitable site is selected for a camp and rough leaf-covered huts are put up. The *dabree* (a shallow tray in which the balata latex congeals) is then built and everything is in preparation for the collection of the latex. The balata-bleeder now proceeds to locate the exact position of the trees nearest at hand, and then makes his plans for collecting. The trees are tested with a small cut in order to ascertain in what condition they are for operating upon, and from these initial cuts an experienced bleeder can readily ascertain which trees will most quickly repay tapping.

RUBBER.

Small quantities of rubber are collected in the forests from the indigenous rubber-yielding species of *Sapium*. This rubber is of good quality and has been exported for many years. It is collected chiefly by balata bleeders under the balata collecting licences, and is shipped in scrap form. It is usually classed on the market as "Orinoco Scrap" and if clean fetches fair prices.

The Customs returns have shown the exports of rubber separately since 1904-5 when some 950 lbs. were recorded. In 1907-8 nearly 7,000 lbs. were shipped but since then the exports have fallen off. This falling off is due to the increased interest that has been taken in the collection of balata, collectors having found it more remunerative to confine their attention to that product than to the collection of rubber.

TIMBER.

The forests of British Guiana are estimated to cover 78,500 square miles of country, or about six-sevenths of the whole area of the colony. The forest may be said to extend throughout the whole colony, being broken at intervals by areas of savannah land; but at present the workable area is confined to 11,000 square miles in the more accessible parts extending from the sea coast to where the large rivers are interrupted by rapids and falls. Timber cannot be transported by water carriage over the rapids that interrupt these rivers beyond their tidal reaches.

The trees composing the forests of British Guiana, are rarely of social habit. A great many different kind of trees exist, and therefore the forests are classed as mixed. The forests vary in height. In some parts, particularly on the low coast-lands and along the tidal reaches of the rivers, the average height of the trees would be about 60-70 feet, but further inland they are much more lofty and are on the average about 100 feet in height. The trees in this high forest generally rise with straight clean stems and are of small girth.

DOMINANT TREES.

In the forests it is often common for different trees to predominate and to form more or less broadly defined natural divisions of forest growth. These are known locally by the name of the prevailing kind—as the greenheart, wallaba, and crabwood forests. Frequently the predominance of different kinds of timber is confined to situations that are defined by the nature and condition of the soil, and therefore these natural divisions of forest growth are accentuated by differing conditions of situation, soil, and other topographical features.

The following separate industries are carried on, at present, in connection with the forests of the colony :—

Woodcutting for	(a)	Timber and Lumber,	
„	„	(b)	Wallaba shingles, palings staves, and posts.
„	„	(c)	Charcoal.
„	„	(d)	Fuel.

Under existing conditions the workable area of the forest is limited to the more accessible parts, where transport is comparatively easy. All hauling is done by gangs of men or by oxen, and the greater portion of the timber is floated down the rivers to convenient points for export.

Labourers for transportation or general work are engaged under contract for periods up to three months at a daily wage. For felling trees and squaring logs trained wood-cutters are required and paid at an agreed rate per cubic foot of the timber squared where felled.

Along the margin of the sea and the river estuaries, belts of mangrove (*Rhizophora Mangle*) and courida (*Avicennia nitida*) principally compose the forest, the latter being mostly confined to the coasts. Higher up the rivers, on the lands bordering their banks, there is an abundant growth of mora (*Dimorphandra Mora*).

In the forests of the slightly elevated country are found most of the timbers that are regularly exported. Various kinds of Kakaralli (*Lecythis* spp.) are generally predominant, but it is in this section of the forests that greenheart, wallaba, and bullet tree are found.

GREENHEART.

Of all the timbers of the colony, Greenheart (*Nectandra Rodioei*) is commercially the best known. Large quantities have been regularly exported within the last 86 years. Rated as a first-class wood at Lloyd's it is chiefly used for submerged works of all kinds such as wharves, piles, dock and lock gates.

The brown or yellow Greenheart is hard, heavy, tough, strong and elastic, and is said to have the

property of resisting the Teredo. The black variety is much scarcer. It can be distinguished from the brown variety by its colour and greater hardness. Logs of greenheart can be obtained from 10 to 25 inches square, and up to 65 feet in length; and no tree which will square less than 10 inches is allowed to be felled.

In its habit the Greenheart may be considered to be partly gregarious. It favours hilly lands with a sandy clay soil, and is usually found most abundantly on the slopes of the hills. The Greenheart areas are estimated to contain an average of thirty-two greenheart trees to the acre and are almost entirely confined to the central parts of the Colony which are traversed by the Essequibo, Demerara and Berbice Rivers and their tributaries. They disappear towards the Eastern borders, and in the North Western District only a few small areas occur in the Barama District, and a solitary one on the Aruka River. In the interior regions there remains a large quantity of this wood waiting easier means of transport for exploitation.

CRABWOOD.

There are two varieties of Crabwood (*Carapa guyanensis*), the red and the white. Red Crabwood is a red coloured wood, with a moderately coarse and open grain. It is largely used in the colony for building purposes and is the most popular furniture wood. It resembles Mahogany in appearance when polished and has proved itself to be a good substitute for that wood. White Crabwood is similar to the red variety, but paler in colour and of less specific gravity. Logs of Crabwood can be obtained from 40 to 60 feet long, and from 8 to 16 inches square.

Crabwood is found growing scattered throughout the forests of all the river valleys of the colony, particularly on the low-lying flat lands that are subject to inundation either by high tides or heavy rains. It also occurs in lesser quantities in more elevated and hilly country. In some parts, notably in the Courantyne District, it is partly gregarious in habit forming almost

pure forests. In the Courantyne District 35-40 trees of 18 inches or more in girth occur to the acre, while in the North Western District the average is 11 to 15 trees to the acre. Supplies of Crabwood have for many years been obtained from the Demerara and Berbice rivers while in recent years the Courantyne and North Western Districts have been worked. The logs are collected and made into rafts and floated to the nearest saw-mills or markets. The felling of Crabwood timber is mostly, if not entirely, carried on by the Aboriginal Indians.

WALLABA.

Of the several varieties of this wood, those principally used are "Soft Wallaba" (*Eperua falcata*) and "Ituri Wallaba" (*Eperua Jenmani*). The heart-wood of these varieties is in great demand for posts and for making shingles, palings, vat staves, etc. Soft Wallaba is a heavy, hard wood, with a very coarse but more or less even grain. It splits readily, is very resinous, and has an unpleasant smell which, however, disappears after a sufficiently long exposure. It is probably the most abundant of the colony's timbers. The Ituri Wallaba is similar in character to the soft variety but is not so abundant. Another variety called the Bimiti Wallaba is only used for firewood.

Both Soft Wallaba and Ituri Wallaba are widely distributed. On the slightly elevated and hilly lands of loose white sand situated in the central and eastern parts of the colony they constitute about 40 per cent. of the forest trees. In the forests of the swamp lands, these two kinds together with Bimiti Wallaba are found on places where the soil is more or less of a sandy nature.

For shingle making, Soft Wallaba is mostly used but Ituri Wallaba is sometimes employed. Only wood having a straight grain can be used. Shingle-making is mainly confined to the Demerara and Berbice Rivers, more particularly to the lower reaches of the former.

OTHER WOODS.

In addition to the woods above mentioned there are many other valuable and handsome woods, a few of which are sometimes exported. The following may be mentioned :—

HARD WOODS.—Mora (*Dimorphandra Mora*) rated first-class at Lloyd's, and used for railway sleepers. It grows near to the banks of the rivers and creeks, is of large size and is useful for many purposes. Bullet Tree (*Mimusops globosa*), is now cut only for special purposes, as it yields balata. The wood is dark red, close-grained, heavy and durable. Suradanni (*Hieronyma laxiflora*) grows in low situations and is fairly plentiful. The wood is of a deep red colour. Purple-heart (*Copaifera Martii*, var. *publiflora*) is one of the tallest trees of the forests. The wood is a dark purple colour and is hard, close-grained and durable. Locust or Simiri (*Hymenaea Courbaril*) grows in sandy soils. The wood is hard, heavy and close-grained, and takes a fine polish. Kakarallis (*Lecythis* spp.) are common in the county of Essequibo. These woods are close-grained, tough and of a light brown colour. Hububalli grows plentifully on some of the tributaries of the Essequibo. The wood is of a light brown colour and takes a good polish. It lasts under water for a long time and is often used for the bottoms of punts and boats.

MEDIUM HARD WOODS.—Silverballi or Siruaballi (*Nectandra* spp.), of which there are several varieties, the Yellow, Brown, Kariti, Yekuru and Mainap, are all handsomely grained woods with an aromatic scent. They are durable woods and are used principally for planking boats and for making knaves of wheels. Warikuri or White Cedar (*Tabebuia longipes*) grows commonly in swampy places and is mostly used for paddles. Determa (*Nectandra* sp.) is well adapted for making corials and canoes and for masts and spars of vessels. It is a light, strong wood, resembling cedar in colour.

SOFT WOODS.—Simarupa (*Simaruba officinalis*) grows throughout the colony especially on sandy soils. The wood is of light colour and is close-grained. It is

useful for inside house-work. Dalli (*Myristica surinamensis*), and Futui or Phootee occur in fair quantities and are used for lumber, making match boxes, etc.

CHARCOAL BURNING.—This industry is principally carried on where the lands are of a sandy nature on the Demerara and Berbice Rivers. The wood is converted into charcoal by burning it in covered pits dug in the sand, in which the wood is packed with the coarser material in the middle. All kinds of wood, and all parts of the trees are used.

FIREWOOD CUTTING.—On the sea coasts *Courida* (*Avicennia nitida*) is much used. On the river lands all kinds of woods are cut for fuel, but Wallaba is mostly favoured, as it splits readily and burns well. Practically all the firewood exported is obtained from the lower Demerara River, where it can be transported cheaply for shipping.

EXPORTS.

During the quinquennial period 1907-1912 the Colony's average yearly exports of timber and wood products were as follows :—

	Quantity.	Value.
		£
Timber	223,663 cubic feet ...	16,956
Charcoal	77,481 bags ...	8,271
Firewood	8,308 tons ...	3,484
Lumber	232,676 feet ...	5,640
Wallaba Shingles	2,426,010 number ...	1,829
Wallaba Posts	5,124 „ ...	429
Mora Railway Sleepers	5,806 „ ...	462

The following table shows the direction of trade during the quinquennial period 1907-1912 :—

	Timber.	Value.	Lumber.	Value.
	Cub. ft.	£	Feet.	£
United Kingdom	119,038	11,284	57,014	1,481
Canada	194	15	21,514	408
United States	5,200	202	28,270	2,151

Details in regards to the forest laws and the regulations and conditions under which licences for

woodcutting purposes are issued will be found elsewhere in this volume.

GUMS, OILS, RESIN, ETC.

Small quantities of gums are collected annually and exported. Gum Animi, obtained from the Locust tree (*Hymenoea Courbaril*) is exported in small quantities. At one time there was a good demand for this product, but not much has been exported of late. This gum resembles amber in appearance and is often found in blocks of considerable size.

Hiawa gum is obtained from *Protium heptaphyllum* and can be had in considerable quantities. The tree is common all over the colony, especially in loose sandy soils. This gum is also known as Resin of Conima, and is used for incense. The Indians use it for scenting their oil.

Tonkin beans are collected, dried and exported. These are yielded by the Kumora or Tonkin bean tree, which is a large tree growing plentifully in some localities, especially above the rapids and on the upper islands of the Essequibo River and its tributaries. The demand for these beans has increased during the past few years, and more collection is now being done than was formerly carried on.

Souari nuts (or Butter nuts), the product of *Caryocar tomentosum* are also collected. The souari nut tree is one of the giants of the forest and thrives best on hilly lands of a clayey nature. Trees under cultivation at Onderneeming Experiment Station have fruited in six years from planting.

The seeds of the Carapa, or crabwood, are collected and from them the well-known "Crab-oil" is obtained. The greater proportion of this oil is manufactured by the Indians.

On the Upper Essequibo River and its tributary, the Rupununi, the tree yielding Balsam of Copaiba (*Copaifera guyanensis*) is common.

Some collection of orchids is done especially on the upper reaches of the Essequibo River, and small quantities are exported from time to time.

III.—ECONOMICAL.

MINING INDUSTRIES.

GOLD.

It is not definitely known when Gold was first discovered in British Guiana, but the first expedition in search of it was made in 1720 up the Berbice River. Various other expeditions were made up the Essequibo, Mazaruni and Cuyuni Rivers during the ensuing 20 years, but with no success. In 1863 the first well organised attempt was carried out by a Company up the Cuyuni River, and gold-bearing quartz was then discovered at Wariri, on the right bank of that river, about 25 miles from the mouth. The project was, however, abandoned, owing to the district being in dispute between this Colony and Venezuela.

Eventually, in the eighties, attention was again directed to the auriferous possibilities of the colony, and after several expeditions to the Essequibo, Mazaruni, and Cuyuni districts the Gold Industry became an established fact in 1886, and was recognised by the Government in the first set of Mining Regulations passed in that year.

From that date the industry developed rapidly, and the gold production rose steadily in each year, until it reached its highest record in 1893-94 with 138,528 ozs. In recent years the annual production of gold has averaged about 82,000 ozs.

THE DISTRIBUTION OF GOLD.

The gold-bearing areas are very widely distributed throughout the colony. Gold has been found in all the rivers with the exception of the Courantyne and the Berbice, but some has been found in the latter.

The districts of the colony where mining has been carried on are those adjoining the Essequibo River and its tributaries the Potaro and the Konawaruk; the Mazaruni and its tributary the Puruni;

the Cuyuni; the Barima, Barama and Waini Rivers in the North West; and the upper Demerara River. Recently a new field has been discovered on the Wenamu, a branch of the Cuyuni and part of the boundary line between the Colony and Venezuela.

Professor J. B. Harrison, M.A., C.M.G., Government Geologist, who has made a geological reconnaissance of the gold-bearing areas of the colony, states that "the gold is found widely diffused in the districts occupied by the Archean rocks, but usually only in payable quantities near intrusions of basic rocks. The basic rocks belong to at least two periods: (1) those of the gneissose formation, probably originally gabbro and diabase, but now quartz-diorite, epidiorite, amphibolite, or hornblende schist; and (2) the unaltered diabase, which is of later origin than the sandstone formation."

All the fields have proved of value, and rich finds have been made in each. Perhaps the most valuable field for its size is at Omai, on the left bank of the Essequibo River, from which place over 95,000 ozs., equal to about 8,750 lbs. of the precious metal have been obtained, from an area of about 60 acres.

THE "PORK-KNOCKER" AND HIS METHODS.

The major portion of the gold obtained has been from alluvial washing as the results of the work of the "tributer" or, as he is locally called, the "pork-knocker." The origin of this name is unknown but it is given to a large class of men who originally started work in the fields as labourers with a claim-holder on the same placer. After the companies and syndicates cease working, these labourers remain in the districts and obtain leave from the owners of claims to 'fossick' in the old workings.

Sometimes small bodies of men, five or six or even ten in number combine together in their work and cleaning up at the end of each day divide the results equally. With the tributer established, provision-shops became necessary where he could take his gold at the end of each day to sell, purchasing

his necessary food and stores in return. The shops sprang up on all sides in the various districts, and the necessities of life can now be easily obtained at fair prices in all the principal fields. These shops have been an important factor in the pursuit of the gold industry in the colony.

The tributer after prospecting commences work by digging a pit from 14 to 20 feet square. All the overburden, where such occurs, is dug out until the "pay-dirt" or gravel is reached. In this pit a "tom" or a "sluice" is then erected.

THE "TOM."

The "tom" is an open box about 8 feet long, $3\frac{1}{2}$ feet wide and 15 inches deep, with an open screen inclined at an angle of 45° affixed at one end. This box is hung on pickets driven into the bottom of the pit. Into the "tom" is thrown the gravel dug out of the pit, and this is puddled against the screen with a constant stream of water brought in through the opposite end of the "tom." This liberates the gold, the fine particles of which pass through the screen and are caught in quicksilver in the "riffles" placed in a small box just below the end of the "tom." Any large nuggets remain against the screen and can be picked out by hand while the sand and dirt that is washed away runs into a tail ditch.

THE "SLUICE."

"Sluicing" is carried on in practically the same manner but has the advantage of allowing a larger number of men to work at the pit, which is made about twice as large as that used for the "tom." The sluices are wooden boxes about 12 feet long and 1 foot wide and deep. They are placed end to end and sometimes as many as six are used at one time. A strong stream of water is passed through the "sluice," into which the pay-dirt is thrown. The rush of water carries the mass along the length of the "sluice," and so does the cleaning work, and saves puddling as in the "tom." The gold is caught in

"riffles" placed all along the whole length of the "sluice." The "sluice" is not suitable for stiff ground which is better worked with a "tom," but it has the advantage of enabling a larger area of ground to be worked with a comparatively smaller number of men than the "tom."

Workers with either a "tom" or a "sluice" clean up their boxes at the end of each day's work. The screens and riffles are removed and the amalgam and spare quicksilver is brushed down and collected in a "battel" or "battea," a shallow conical wooden dish about 18 inches in diameter. The liquid quicksilver is poured off, the remaining amalgam is then placed in a small cloth or chamois skin in order to remove as much quicksilver as possible by squeezing and it is then flattened out and placed in a flat iron dish on a fire and roasted until the mercury has volatilized. The gold remains in the dish as a dull yellow mass.

"CRABBING."

The tributer has another method of working called "crabbing." This consists in searching for pieces of quartz in which there is visible gold. This quartz is pounded up and any nuggets of gold found are carefully put aside. The fine gravel and sand which result from the pounding are then taken to the nearest creek and washed in a "battel."

In 1890 numerous out-crops of gold-bearing quartz found in several districts attracted the attention of miners and capitalists. Companies were formed to work the reefs which had been located at Kanaimapoo and Appapuru in the Demerara river and in the vicinity of Arakaka on the Barima river, North Western district. Auriferous quartz has been worked for a time successfully at the "Peter's Mine" in the Puruni river, at the "Aremu Mine" in the Cuyuni, and at the "Barima Mine," near Arakaka in the Barima, but financial success did not crown their efforts and at the present time all quartz mines are closed down.

Dredging is being successfully carried on in the Konawaruk river. Four dredgers are now at work in

this river, and from the commencement of operations in December, 1906, the Company that owns them has obtained 31,532 ozs. of gold. Another company is also successfully working a dredge on the Minnehaha creek, a tributary of the upper Konawaruk.

The dredging possibilities in the Potaro district are very marked and will undoubtedly attract attention in the future.

Hydraulicking work was carried on at Omai, in the Essequibo river for a period of three years, during which time 27,123 ozs. of gold were obtained.

PRODUCTION OF GOLD.

The following is the amount of Gold recorded at the Department of Lands and Mines since 1884:—

From 1884 to 1905	...	...	1,756,630 ozs.
1905-06	...	...	94,363 ozs.
1906-07	...	...	85,505 ozs.
1907-08	...	...	67,209 ozs.
1908-09	...	...	73,655 ozs.
1909-10	...	...	64,830 ozs.
1910-11	...	...	54,989 ozs.
1911-12	...	...	50,274 ozs.
Total	...	...	<u>2,247,455 ozs.</u>

The total value of the above amounts is £8,193,845.

Fine gold occurs in places, but as a rule the gold obtained in the colony is coarse and nuggetty. The largest nuggets found have been one of 333 ozs., from the Five Stars District in the Upper Barima River, and one of $111\frac{1}{2}$ ozs., from Tiger Creek, Potaro.

DIAMONDS.

During the early years of the gold industry, some diamonds were found when the day's "clean-up" was taking place, and the stones naturally attracted attention. A gold expedition to the Upper Mazaruni in 1890 discovered small diamonds in fair quantities and in the following years several expeditions were despatched to this district. Stones of very good 'water' were found in considerable quantities but they were small and hence of no great value.

Diamond mining was first started in the Upper Mazaruni at Putareng Creek, and is still being carried on in that district. Diamonds have also been discovered in the country around the Kuribrong and Cuyuni Rivers. The stones are found over a fairly large area in the Mazaruni, and are obtained by washing the gravel in which they lie in a very similar manner as "sluicing" for gold as follows:—The gravel or pay dirt is puddled and gradually forced through a series of iron screens, the holes in which begin with half inch in the first screen and are gradually reduced to one-eighteenth of an inch in the last one. The fine gravel which has passed through this last screen is collected and thrown on a large iron plate on a table, and being spread out it is then carefully searched through for the diamonds which are easily recognisable by their brilliant lustre and shape.

The following is the production of diamonds for the last five years:—

1907-08	...	...	2,121 Carats.
1908-09	...	...	5,617 "
1909-10	...	...	7,180 "
1910-11	...	...	3,035 "
1911-12	...	...	7,647 "

The stones are of good quality, and run on an average from 10 to 15 to the carat, though some large stones have been found, two quite recently weighing $12\frac{1}{2}$ and $12\frac{1}{4}$ carats respectively.

ADMINISTRATION.

The colony is divided into mining districts, each under the control of an officer of the Department of Lands and Mines styled "Warden" or "Sub-Warden" who has powers to settle all disputes as to claims, who is continually traversing the district, and whose help and assistance in carrying out the regulations is therefore easily obtained.

The Royalty on gold is 70 cents (2s. 11d.) an ounce and 4 cents (2d.) an ounce on silver, but all gold and silver obtained by milling pays a tax on profits of 5 per cent. in lieu of royalty. Diamonds found on prospection pay a royalty of 10 per cent. on their value. but when obtained from a claim a fee of \$25 (£5 4s. 2d.) per quarter acre is charged for all land worked, and no royalty is payable in that case. All gold, silver and diamonds must be reported on arrival in Georgetown at the Department of Lands and Mines.

The colony being so intersected by rivers, the general means of transport is by water, and the facilities are good. There is steamer communication from Georgetown to all the centres of the districts, whence boats and crews can easily be obtained to cover the remainder of the journey at a reasonable cost.

LABOUR.

The labour generally employed in the Gold and Diamond Industries is composed of negroes, natives of the colony and from the West India Islands, and a few from Dutch and French Guiana. They are strong and capable of great endurance, and are well fitted for the work.

All labourers, with the exception of Aboriginal Indians, must be registered by the Institute of Mines and Forests, whose head office is in Georgetown, with branches in all districts. They are generally engaged to serve for a period of three or four months, and the daily wage paid ranges from 36 cents (1s. 6d.) to 72 cents (3s.) for ordinary unskilled men.

Qualified dispensers are required to be kept on all claims where 50 men or over are employed, and certain medicines for their use must also be kept on the claim. Failure to pay labourers their wages within 14 days after they are due renders an employer liable to a fine of \$50 (£10 8s. 4d.) or imprisonment, and any labourer who fails to complete his contract is liable to a fine of \$48 (£10) or imprisonment.

The Mining Regulations require that all labourers must be supplied with rations according to a scale fixed by the Government. The shops which exist in all districts will arrange to supply the men with these rations at from 20 cents (10d.) to 30 cents (1s. 3d.) per man per day, according to the district.

The Mining Regulations of the colony are simple and generous and will be found in detail elsewhere in this volume. All claims and Concessions give the holder the right to use the timber on them, and in the case of dredging concessions this right extends over a width of 150 feet from each bank of the stream.

III.—ECONOMICAL.

MANUFACTURES.

MANUFACTURES.

First and foremost of the manufactures of the colony is sugar with its by-products, rum, molasses and molascuit. These together represent from 70 to 75 per cent. of the total value of the exports of the colony.

The sugar factories are equipped with modern machinery and labour-saving appliances and are capable of turning out considerable quantities of sugar. For the purpose of economy, centralization has been adopted wherever practicable and whereas in 1882 there were 106 factories at work, in 1912 there were only 39. There has been no diminution in the output of the colony and all the sugar manufactured is either in the form of raw crystals, which are sold to refiners in Canada, the United Kingdom and the United States, or of the well-known "Demerara crystals"—a yellow grocery sugar which is shipped to the United Kingdom for direct consumption. The exports of rum, molasses, and molascuit are inter-dependent. Rum is distilled from molasses and when the price of rum is depressed, the distiller naturally exports the molasses either in their raw state or as molascuit. Larger exports of rum result in smaller exports of molasses and molascuit and *vice versa*. The export of molascuit—a highly nutritious cattle-food made from molasses and megass (the waste fibre of the sugar-cane)—did not commence until 1902-3, and consequently during the past ten years the quantity of rum manufactured has been less than was made previously.

The second largest agricultural industry is rice, and there are numerous rice mills scattered about the colony, the owners of which either buy paddy from the growers or mill it for them. The West Indies provide a market for British Guiana rice and there is a very large local consumption. Brown rice is demanded and

consequently this kind is almost universally manufactured. The demand for white rice, *i.e.*, rice which has not been soaked and steamed before milling is practically nil. The rice mills are specially arranged to make brown rice. Most of the machinery is of American origin, but one or two factories have been equipped with machinery made in Scotland.

There are several steam saw-mills at work in Georgetown, New Amsterdam and in the outlying portions of the colony. These handle the various excellent woods obtained from the forests of the colony, and generally consist of the Scotch vertical gang-saw and accompanying wood-working machinery. One or two hand-saws are also worked.

FOUNDRIES.

Two foundries exist in Georgetown and one in New Amsterdam. The largest one in Georgetown is attached to the business of the local Steamer Contractors, Messrs. Sproston, Limited. A Dry Dock is also attached to the same business. Two Match Factories are working on the Demerara River in close proximity to Georgetown. The wood used is all obtained locally and is of excellent quality, as it ignites and burns readily and well. These two factories employ a number of female hands. At Kitty Village on the outskirts of the town a soap factory has been working for some years, coconut oil produced in the colony being used in the manufacture.

Through the enterprise of a local firm a plant has recently been erected for drying copra, and the same people have for many years worked a well-equipped biscuit factory and for the last few years a large up-to-date cold storage and ice-making plant.

Among other factories may be mentioned a boot factory and tannery. Local hides are tanned and boots and shoes of good quality are manufactured therefrom. There is also a chocolate factory and several aerated water factories.

Small factories for the manufacture of coconut oil, coconut meal and copra are scattered about the country

districts, but considerable improvements could be effected by up-to-date machinery.

There are special opportunities for the establishment of brick kilns, steam laundries, factories for preserving fruits and vegetables, good up-to-date dairies for the supply of a reliable, pure milk supply, and of factories for the manufacture of paper-pulp.

III.—ECONOMICAL.

COMMERCE.

COMMERCE.

During the year 1911-12, the number of vessels which entered from and cleared for places outside the limits of the colony amounted to 5,425 with an aggregate registered tonnage of 988,663 tons. Eight hundred and fifty-three of these related to steam vessels and the remainder to sailing craft—the majority of which consisted of small craft which entered the ports of Springlands and Morawhanna from Dutch Guiana and Venezuela respectively. Of the steam vessels 415 entered with cargo and in ballast while 438 cleared outwards. Two hundred and forty-five of the steam vessels entered were British and 101 Dutch, The tonnage of the British vessels was 315,986 tons and that of the Dutch vessels 92,867 tons. Of the total tonnage of both steam and sailing vessels entered 67·8 per cent. were under the British Flag and 19·34 per cent. under the Dutch. The principal lines of steamers running to Georgetown are shown in the following statement for 1911-12:—

Line of Steamers.	Number.	Tons.
Dutch Government (Surinam)	74	3,156
Royal Dutch West India Mail	53	90,240
Sproston's, Ltd. (Surinam Service)	37	5,433
Royal Mail Steam Packet Company	36	51,467
Pickford and Black (Canadian Mail)	31	49,248
Direct Line, Glasgow	30	52,015
Quebec Steamship Company	25	50,617
Compagnie Generale Transatlantique	23	11,109
Direct Line, London	18	40,075
Liverpool Line	16	16,261
East Asiatic Company, Ltd.	13	20,841
Trinidad Trading Company	9	17,865
Cayenne-Bolivar Line	9	1,071
Nourse Line	8	17,862
Armstrong Line	8	9,312
Elder-Dempster Steamship Coy.	5	11,307
All other Steamers	20	20,222
Total	415	468,101

The tonnage entered and cleared during 1911-12 was less than the aggregate of the previous years but was in excess of the average tonnage entered and cleared during the previous five years. Variations in the annual amount of registered tonnage entering and leaving the colony do not indicate the quantities of goods imported and exported as the majority of the vessels only bring and take away port cargoes. A better indication of the external trade of the colony is to be had in the amount of tonnage dues collected annually, as steamship owners and their agents have the option of paying dues either on the registered tonnage of the steamer or on the actual quantity of cargo discharged or taken on board. The tonnage dues for 1911-12 were \$48,863 (£10,190).

IMPORTS.

The total value of the imports of the colony for the year 1911-12 was returned at \$8,575,557 (£1,786,574) or \$29 (£6) per head of the population. This amount is greater than the two previous years and \$72,903 (£15,188) greater than the average of the quinquennium. Forty-eight per cent. of the total imports were obtained from the United Kingdom, 24·6 per cent. from the United States of America and 6·4 per cent. from Canada.

The principal items from the United Kingdom were as follows :—

Imports.	Value.
Linen, Cotton and Woollen Goods ...	\$ 806,805 = £ 168,084
Manures ...	581,777 = 121,203
Haberdashery and Millinery ...	193,233 = 40,257
Machinery, for manufacture of Sugar ...	161,309 = 33,606
Malt Liquor ...	154,805 = 32,251
Coals... ..	141,814 = 29,545
Hardware and Cutlery ...	103,926 = 21,651
Dried Fish ...	101,149 = 21,073
and Boots and Shoes, Clothing, Miscellaneous Machinery, Soap, Manufactured Tobacco and Whisky.	

The principal items from the United States of America were :—

Imports.	Value.
Flour	\$ 650,019 = £ 135,421
Pickled Pork	165,550 = 34,490
Pickled Beef	119,337 = 24,862
Petroleum	100,002 = 20,834
and Hams, Lard, Lumber, Linen, Cotton and Woollen Goods, Cotton Seed Oil and Leaf Tobacco.	

The principal items from Canada were :—

Imports.	Value.
Flour	\$ 217,677 = £ 45,349
Fish, Dried or Pickled	117,651 = 24,511
and Grain, Oats, Lumber and Potatoes.	

The value of the import trade with the United Kingdom was slightly greater than that of previous years. Import trade with the United States slightly declined, and there was a decided drop in the value of the imports from Canada, the articles chiefly responsible for the shrinkage being dried fish, flour, grain and potatoes.

The total value of the imports during the past five years has been as follows :—

1907-8	\$ 8,473,721 = £ 1,765,358
1908-9	8,826,946 = 1,838,947
1909-10	8,517,396 = 1,774,457
1910-11	8,398,879 = 1,749,766
1911-12	8,575,556 = 1,786,574

Of the \$8,575,556 (£1,786,574) worth of imports for 1911-12, 47 per cent. paid specific duties, 28 per cent. *ad valorem*, 20 per cent. were admitted free, and 5 per cent. were transhipped.

The articles that paid specific duty were beef, butter, coffee, dried fish, flour, gange, grain, malt

liquor, oils, opium, petroleum, pork, rice, salt, spirits, tea, and tobacco; and the articles admitted free were agricultural implements, books, bullion, cattle for breeding purposes, fresh fruits and vegetables, ground provisions, machinery, manures, poultry, printing materials, quinine, sewing machines, tools, etc.

EXPORTS.

The total value of the exports of the colony for the year 1911-12 amounted to \$10,429,275 (£2,172,766), an advance over the value of the export trade for the previous year of \$1,692,324 (£352,467). The colony's produce and manufacture amounted to \$8,514,731 (£1,773,902) which is an increase of \$1,646,601 (£343,041) over 1910-11 returns.

Sugar was the principal factor that conduced to the large increase in the values of domestic exports; for higher prices prevailed in the sugar markets of the world as the result of the drought in the chief beet-growing countries of Europe. The quantity of sugar exported was low, owing to shortage in yield, and of the by-products of sugar, rum alone exceeded the output for the year 1910-11. The increase in the amount of diamonds exported during 1911-12 was noteworthy, the output being nearly double of the year preceding. The exports of coffee locally grown showed an increase of 28,042 lbs. and the exports of cacao showed an increase of 36,453 lbs. over the exports of the previous twelve months. The chief decreases of exports were rice, molascuit, gold, timber, lumber and molasses. The shortage in the export of rice, molasses, molascuit, was due to a great extent to the drought. The export of timber and lumber was also restricted through the drought creating difficulties in transport of certain classes of wood from the interior.

The principal exports are sugar, and its by-products (rum, molasses and molascuit), gold, balata, rice, timber, diamonds, cattle, coconuts, and coffee. The value of the export of sugar and its by-products

has varied during the past ten years from 71 to 77 per cent. of the value of the total exports, and the following table gives the value for the past five years :—

				Value of Sugar and by-products.	Per cent.
1907-8	...	...	...	\$ 5,407,380 = £ 1,126,537	73
1908-9	...	...	...	7,075,510 = 1,474,065	75
1909-10	...	...	...	6,586,510 = 1,372,190	75
1910-11	...	...	...	5,592,732 = 1,165,152	72
1911-12	...	...	...	7,266,322 = 1,513,817	77

The exports of sugar since 1903 have gone mainly to Canada, but considerably quantities are still shipped to Great Britain and to the United States of America. The exports of sugar during the past five years, and their destination is shown in the following table :—

	To Great Britain.	To United States.	To Canada.	To Elsewhere.	Total Tons.
1907-8 ...	12,990	...	87,708	39	100,737
1908-9 ...	25,563	16,802	72,605	243	115,213
1909-10 ...	33,222	15,376	59,572	363	108,533
1910-11 ...	22,642	24,334	53,837	141	100,945
1911-12 ...	14,454	21,523	63,377	14	99,368

The value of the gold exports is shown in the following table :—

				Quantities. ozs.	Values.
1907-8	...	...	...	65,717	\$ 1,148,299 = £ 239,229
1908-9	...	...	...	74,001	1,302,241 = 271,300
1909-10	...	...	...	63,281	1,101,678 = 229,516
1910-11	...	...	...	55,543	916,778 = 197,345
1911-12	...	...	...	51,196	915,516 = 190,732

The exports of balata and their value have been as follows :—

	lbs.	Values.		
1907-8	973,269	\$ 368,538	=	£ 76,779
1908-9	1,090,405	471,017	=	98,129
1909-10	1,034,076	468,035	=	97,507
1910-11	1,162,585	670,192	=	139,623
1911-12	1,101,593	673,350	=	140,281

The export of rice has been as follows :—

	lbs.	Values.		
1907-8	6,977,877	\$ 191,423	=	£ 39,880
1908-9	8,300,677	240,308	=	50,064
1909-10	12,294,815	310,161	=	64,617
1910-11	8,474,214	242,896	=	50,603
1911-12	6,686,820	192,782	=	40,165

The quantity of timber exported is about a quarter of a million cubic feet, and about the same number of feet of sawn lumber, as well as 2 million shingles, 70,000 bags of charcoal, about 6,000 mora railway sleepers, together with wallaba posts and firewood. The export of coconuts reached 1,500,000 in 1911-12, and the export of coffee nearly 136,500 lbs.

Sugar is chiefly exported to Canada, gold to Great Britain, balata to Great Britain, rice to the West Indian Islands, diamonds to Great Britain, cattle to Dutch Guiana, coconuts to the United States, and coffee to Great Britain. Canada took 40 per cent. of the exports, Great Britain 33 per cent. and the United States nearly 17 per cent. The aggregate trade of the colony for the year 1911-12 totalled the sum of \$19,004,831 (£3,959,340 .) Approximately 40 per cent. of such trade was done with Great Britain, 25 per cent. with Canada and 20 per cent. with the United States of America.

CANADIAN RECIPROCITY.

On April 9, 1912, there was signed at Ottawa, Canada, an agreement between the Dominion and certain of the West Indian Colonies, including British Guiana, by which in return for consideration on the part of those colonies, certain articles of merchandise, being *bonâ fide* the growth, produce or manufacture of the United Kingdom, Canada or Newfoundland are to be admitted into the colonies at such preferential rates of duty as may be specified in any Customs Duties Ordinance for the time being in force. This scheme of reciprocal customs duties was approved and adopted by the Combined Court of British Guiana on July 3, 1912, and it is hoped that the scheme will be in operation by June, 1913. In effect, for a reduction of import duty of 20 per cent. on the above-mentioned goods from the United Kingdom, Canada and Newfoundland, Canada promises an effective continuation of the Imperial Preference, which at the present moment stands at 33½ per cent.

That this has been a move in the right direction few can question, especially since the withdrawal of Great Britain from the Brussels Convention.

So far as sugar is concerned, however, though Canadian Reciprocity gives British Guiana and the West Indies a certain market, the Cane Industry will never be free of dislocation, insecurity and uncertainty until it is put on a sound financial and businesslike footing on all British soil and in all British markets. When this is done, faith in an enormous expansion will be forthcoming for an industry capable of immense possibilities in the employment of capital and of British people of all classes, in wages for labour of many kinds, in large increases in imports and exports; and manufacturers, machinery makers, and ship owners and builders in the Mother Country will very greatly benefit.

The great transportation of imports and exports necessary in connection with a possible crop of 3,000,000 tons of cane sugar from this part of the world alone, together with the extension of all other paying industries already existing or to be established in the future, would improve trade and commerce, for all, to an immense extent. It is to be hoped that Britishers will eventually see the advisability of being independent of foreigners for their supply of sugar, with benefit to all British tropical countries.

In the meantime, British Guiana must be content to do the best possible with Canadian Reciprocity. Like the Brussels Convention, which was substituted for the countervailing duties asked for, half a loaf is better than no bread.

The possibilities, however, with Canadian Reciprocity, provided the cheaper and better cable communication is promptly established and the improved steamship service is shortly started, are very promising to many tropical exports besides sugar, and during the ten years from 1913, the Colony should put its shoulder to the wheel and make the most of it; working at the same time to get the larger and more extensive scheme of fixing up sugar and various other agricultural and commercial industries in the British tropics on a secure businesslike basis of a permanent nature in British markets. Undoubtedly cane-sugar, on a fair, square and level footing, *which must be obtained*, need have no fear of beet at any time.

III.—ECONOMICAL.

REGULATIONS

RELATING TO LEASING CROWN LANDS.

REGULATIONS RELATING TO THE LEASING OF CROWN LANDS.

The disposal of the Crown Lands, for purposes other than mining, is provided for under Ordinance No. 32 of 1903, and regulations framed thereunder. The Ordinance and regulations are administered by the Lands and Mines Department, but the sole power of making grants, etc., is vested in the Governor.

Applications for grants, licences or leases of Crown Lands must be made in writing to the Commissioner of Lands and Mines, Georgetown, and must contain a full description as to position and area of the land required and the full name and address of the applicant. Application forms may be obtained free of cost at the Department of Lands and Mines.

GRANTS.

Grants of Crown Land can be purchased freehold in areas usually of from 25 to 100 acres at \$1 (4s. 2d.) per acre. The ordinary applicant is restricted to 25 acres unless he can show that he is financially able to cope with a larger area, but tracts of more than 100 acres are, in special circumstances, sold to approved applicants. One-half the purchase money must be deposited at the time of application. Land sold outright, or "granted" as it is termed, can be dealt with in the same manner as private property and may be leased, mortgaged, or sold by the "grantee" at will. The grantee must keep erected at each of the front boundary paals a notice board showing in legible letters the registered number of the grant and the bearings and length of the side and front boundaries. The boundary lines of the tract must also be kept open to the satisfaction of an inspecting officer of the Lands and Mines Department. These

conditions are in force for 10 years from the date of the grant and non-compliance therewith during the period renders the grant liable to cancellation at the discretion of the Governor. At the expiration of 10 years, the grant becomes freehold property. The present charge of \$1 (4s. 2d.) per acre includes all the costs of survey and preparation of the title. For tracts of larger area than 100 acres the cost per acre is such sum as the Governor may fix.

In addition to the form of grant above mentioned, the Governor also has the right to make grants subject to such conditions as he may think fit.

Homestead Grants, not exceeding five acres, may be purchased at 50 cents per acre by individuals who are heads of families and by anyone over 21 years of age. On such grants, it is required (1) that a dwelling shall be erected within the first year, (2) that the owner shall reside on the grant for 10 years and (3) that he shall beneficially occupy or cultivate one-fifth of the area during the first year and thereafter increase this area yearly by at least one-tenth of the whole area until he has the whole tract cultivated or beneficially occupied. Notice boards have to be erected and boundary lines kept clear, and after a period of 10 years an absolute title to the land is given if the above conditions are complied with, and the grant then becomes private property. The whole of the purchase money for Homestead Grants must be deposited at the time of application.

LICENCES OF OCCUPANCY.

Licences of Occupancy for general agricultural purposes or for grazing can be obtained for a term of years (usually from 10 to 21 years) or during His Majesty's pleasure at a yearly rental of 5 cents (2½d.) per acre. The area licensed for agricultural purposes is ordinarily limited to from 25 to 100 acres, but to approved applicants larger areas may be licensed at a rate of from 5 cents per acre and upwards according to the estimated value of the land.

The following conditions are imposed :—

1. The holder shall not transfer his interest in the land or sublet any portion without the permission of the Commissioner of Lands and Mines.
2. Notice boards must be kept erected and boundary lines kept open.
3. Rental must be paid in advance within the first quarter of the financial year.
4. At least one-fourth of the tract must be cultivated or beneficially occupied within two years from the date of issue of licence and must thereafter be maintained in good order.
5. The licensee must conform to the Indian regulations if Aboriginal Indians are employed.

The licensee becomes the owner of all timber, rubber, balata, gums, orchids, etc., on the tract licensed, and they may be sold or disposed of by him without payment of any royalty.

Cost of licence :—

Application fee...	...\$5 00=£1 0 10
Survey fees 1st 500 acres	30= 1 3 per acre.
„ „ 2nd 500 acres	20= 10 „ „
„ „ above 1,000 acres	10= 5 „ „

The Commissioners may permit any applicant to supply all labour, material, etc., needed for cutting lines and for aiding the surveyor in making the survey and will, in such case, refund the cost of such labour, etc., from the fee deposited with the application at the completion of the survey.

LEASES.

The Governor has the power to grant leases on such conditions as he may think fit, if the conditions for licences of occupancy above mentioned are not applicable to the particular purpose for which it may be desired to grant a lease. The fees payable on leases for general agricultural purposes are similar to those above given.

LEASES FOR RUBBER CULTIVATION.

Areas not exceeding 2,000 acres for the purpose of cultivating rubber thereon are leased for a term of 99 years on the following terms:—

1. No rent for first ten years of the lease.
2. An annual rental of 20 cents (10d.) per acre from the eleventh to fifteenth year.
3. An annual rental of 50 cents (2s. 1d.) per acre from the fifteenth year onward.
4. A royalty of 2 cents (1d.) per lb. of rubber, balata or like substance, whether from indigenous or cultivated trees during the first ten years of the lease.
5. To plant one twenty-fifth of the land leased each year with rubber trees with an average of not less than 60 trees to the acre for the first ten years of the lease until ten twenty-fifths of the total area of the tract is planted up and to maintain same in good cultivation to the satisfaction of the Governor-in-Council.
6. To cut down no balata or rubber-producing tree in the clearing of the land for cultivation without permission in writing from the Commissioners of Lands and Mines.
7. To comply with the conditions as to transfer, employment of Aboriginal Indians, erection of notice boards, and keeping open of boundary lines as are presented in the case of grants and licences of occupancy.
8. To allow a right of way across any portion of the land leased to the Crown lands aback of the same.
9. To reserve to the Crown to take or obtain mineral oil from any deposit that may exist in or under the land leased, but the lessee has the right to compensation if any damage is suffered by him in consequence of obtaining mineral oil from the said land.

Cost of lease.—

The fees payable for obtaining a lease, which must be deposited with the application, are as follows:—

Application fee	...	...\$5 00=£1 0 10
Survey fees—1st 500 acres, per acre		30= 1 3
—2nd „ „ „ „		20= 10
—3rd „ „ „ „		10= 5

Cost of drawing up, executing
and stamping lease in Registrar's

Office, say	...	...16 20= 3 7 6
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The rents on such leases must be paid on the date they become due or otherwise the lessee has to pay in addition interest thereon at the rate of 6 per cent. per annum for each day of default, and if they are not paid within 15 days of their becoming due, the Commissioner has the right to re-enter and take possession of the land without paying compensation for any buildings and machinery thereon.

If all the terms of the lease have been complied with, the lessee has the right, at any time after the expiration of ten years from the date of the lease, to purchase the land at the price of four dollars (16s. 8d.) per acre which thence onward becomes private property.

LEASES FOR THE CULTIVATION OF PERMANENT AGRICULTURAL PRODUCTS.

Leases of areas up to 2,000 acres are granted for terms of 99 years for the cultivation of limes and other citrus fruits, cacao, coffee, coconuts, fibres, or other permanent agricultural products on the following terms:—

1. No rent for first seven years of the lease.
2. An annual rental of 25 cents (1s. 0½d.) per acre from the eighth to fifteenth year inclusive.
3. An annual rental of 80 cents (3s. 4d.) per acre during the remainder of the lease.
4. A royalty of 2 cents (1d.) per lb. of rubber, balata or like substance, whether from indigenous or cultivated trees during the term of the lease.

5. To plant one-twenty-fifth of the land leased each year with limes or citrus fruits, cacao, coffee, coconuts, fibres or other permanent agricultural products according to regulations approved by the Board of Agriculture until seven-twenty-fifths of the total area of the tract is planted up and to maintain the same in good condition to the satisfaction of the Governor-in-Council.
6. To comply with such conditions as to transfer, employment of Aboriginal Indians, etc., as are presented in the case of Grants and Licences of Occupancy.
7. To comply with conditions similar to 8 and 9 of the Rubber cultivation lease conditions.

Cost of lease—

The same scale as for Rubber cultivation lease.

The conditions as to rental are also the same as for the rubber cultivation lease and if all the terms and conditions of the lease have been complied with the Lessee can at any time after the expiration of seven years give up any part of the land, not being more than one-half thereof, on the payments of \$5 (£1 0s. 10d.) for each acre of land retained and an annual rental of 5 cents (2½d.) for the portion so retained in lieu of the amounts previously mentioned.

LICENCES TO COLLECT BALATA AND RUBBER.

Licences conferring the right to collect both balata and rubber are granted for terms not exceeding 15 years, or during His Majesty's pleasure, and they confer the right of collecting both balata and rubber on the sections for which they are issued. The more readily accessible districts, north of the Siparuni River are divided into 50 square mile sections computed as follows :—A facade or width of 4 miles along the river on which the tract is situated by a depth inland from the river of 12½ miles. In the less accessible districts, south of the Siparuni River, the sections are approximately areas of about 250 square miles

each, defined as far as possible by the natural features of the country. A separate licence is issued for each section.

Applicants for licences have to give the Commissioner of Lands and Mines security to his satisfaction in a sum not exceeding \$5,000 (£1,041 13s. 4d.) to ensure that the regulations will be carried out and that the royalty on balata and rubber collected will be paid. Persons making applications for more than one licence may give a security in a maximum sum of \$5,000 in respect of all such tracts.

The conditions of the licences under the Crown Lands Regulations, 1910, are as follows:—

1. An annual rental of \$20 (£4 3s. 4d.) for each licence, payable in advance.
2. Surrender of licence may be made at end of any year provided that one month's notice in writing is given and upon payment of \$5 (£1. 0s. 10d.) for each year during which the licence has been in force.
3. A royalty of 2 cents (1d.) on every lb. of balata, rubber, or substance of a like nature collected.
4. Licensees cannot transfer or sublet their licences without the permission of the Commissioner of Lands and Mines.
5. To comply with the regulations in regard to boundaries, employment of Aboriginal Indians, etc., as given previously.
6. To work the tracts to the satisfaction of the Commissioner of Lands and Mines.
7. The licence does not confer the right to plant any rubber, balata or other trees on any portion of the land, and the Government reserves to itself the power to grant subsequently any portion of the land for agricultural purposes.
8. Not to obtain a licence to collect balata or rubber from a Government on the frontiers of this colony, or otherwise the licence becomes *ipso facto* forfeited.

Costs of licence.—

Application fees ... \$8. 00=£1 13. 4.

All employees for collecting balata and rubber have to be registered and any person found labouring on a tract in contravention of this regulation is liable to a penalty, on conviction, not exceeding \$25. No balata tree is allowed to be bled which does not measure 36 inches in girth at 4 feet from the ground. Trees may only be bled on one-half of their girths at any one time, and no tree is allowed to be re-tapped until previous incisions are completely healed. The cuts in the bark must not be more than $1\frac{1}{2}$ inches wide on the outside, must not be closer than 10 inches and must not penetrate to the full depth of the bark. For bad bleeding and contraventions of the conditions under which the licences are issued the licensees are held responsible. For bad bleeding an employee is on conviction liable to a penalty of \$48 (£10) and the licensee is empowered and expected to prosecute an offending employee, but this does not, of necessity, absolve the licensee from responsibility. If the damage done is of a serious nature, the licence may be cancelled but where the injury is not in the opinion of the Governor of such a serious nature as to warrant the cancellation of the licence and the enforcing of the bond for the full amount, the licensee is required to pay the Government, by way of penalty, such a sum as the Governor may in his discretion fix.

In the case of two contiguous tracts held by different licensees not being defined by natural features, the Commissioner of Lands and Mines may require the boundary line to be cut and defined at the joint expense of the licensees.

LICENCES TO CUT WOOD.

Woodcutting licences for areas up to 2,000 acres are issued for any desired term of years or during His Majesty's pleasure. Larger areas are granted in special circumstances to approved applicants who can satisfy the Governor of their ability to work them. In

any case adequate security may be required before a licence is issued.

The conditions attaching to woodcutting licences are :—

1. To pay an annual rental of \$5 (£1 0s. 10d.) for areas up to 500 acres and \$10 (£2 1s. 8d.) for any area greater than 500 acres.
2. To cut no greenheart which will square less than 10 inches and no bullet-tree without permission from the Commissioner of Lands and Mines.
3. Not to transfer or sublet the interest in the land without permission.
4. To work the tract to the satisfaction of the Commissioner of Lands and Mines.
5. To comply with the regulations in regard to boundaries, employment of Aboriginal Indians, etc.
6. To pay royalty as follows :—
 - (a) On greenheart or other woods of specific gravity greater than 0·7, one cent ($\frac{1}{4}$ d.) per cubic foot ;
 - (b) On other timber with a specific gravity of not more than 0·7, one-half of one cent ($\frac{1}{8}$ d.) per cubic foot ;
 - (c) Ten cents (5d.) per 1,000 on shingles ;
 - (d) Twelve cents (6d.) per 100 on paling staves ;
 - (e) Ten cents (5d.) per 100 feet on vat staves and tacouba paling posts ;
 - (f) One cent ($\frac{1}{3}$ d.) per bag on not more than 100 lbs. on charcoal ;
 - (g) Eight cents (4d.) per cord on firewood ;
 - (h) Five cents (2½d.) per 100 feet on hardwood beams 6 inches in diameter ;
 - (i) Three cents (1½d.) per 100 feet on hardwood spars not more than 4 inches in diameter ;
 - (j) Five cents (2½d.) per 100 feet on wattles ;
 - (k) Ten cents (5d.) per 100 feet on shovel or other sticks ;
 - (l) Two cents (1d.) per bag of not more than 100 lbs. on greenheart or mangrove bark.

COST OF WOODCUTTING LICENCE.

Application fees	...	...\$ 5 00=£1 0. 10.
Inspection fees in lieu of survey	}	\$20 00=£4 3. 4.
and not necessary if the tract		
is bounded by creeks or other		
well defined limits or when		
the applicant marks out the		
boundaries himself by a	}	to
cleared path, according to		
area from	}	\$40 00=£8 6. 8.
Survey fees (when required)		
Licences of Occupancy. similar to fees for		

The holder of a woodcutting licence may obtain permission to occupy as a *dépôt* for storing his timber, etc., and to cultivate any portion thereof for the support of himself and his labourers an area not exceeding 5 acres on a river or a creek, and to make and use a timber or cart path connecting the same with his woodcutting tract on payment of a fees of \$1 (4s. 2d.) and a rental of \$1 (4s. 2d.) per annum.

A licensee may also, on obtaining a permission, at a cost of \$1 (4s. 2d.) from the Commissioner, bleed *balata* from bullet-trees which he has obtained special permission to fell for the purpose of being squared.

LICENCES TO COLLECT GUMS AND ORCHIDS.

Any person desiring for the purpose of trade to collect from Crown lands any gums other than *balata* or rubber, or any tonka beans, or plants, or to collect orchids whether for trade or not must obtain a permission in writing from the Commissioner of Lands and Mines. This permissions extend for a period of the financial year only, *i.e.*, from April 1st to March 31st following.

The royalty payable where such gums, etc., or orchids are exported is as follows :—

Gums, tonka beans, etc.	1 cent ($\frac{1}{2}$ d.)	per lb.
Orchids	5 cents ($2\frac{1}{2}$ d.)	each.

The costs of the permissions are as follows :—

To collect gums, tonka beans, etc...\$1=£ 4s. 2d.

To collect orchids—

For export\$5=£1 0 10.

For trade in the colony ...\$2=£ 8 4.

LICENCES TO QUARRY.

Licences to quarry stone, sand, gravel, shell, 'caddy', kaolin, etc., are issued for any term of years or during His Majesty's pleasure under the usual regulations as regards transfer of interest, boundaries, employment of Aboriginal Indians, etc. Operations must be commenced within such time from the date of the licence as may be fixed by the Governor and must thereafter be continued to the satisfaction of the Commissioner of Lands and Mines.

Blasting operations must be carried on only between sunrise and sunset and a red flag must be hoisted at the spot of quarrying at least 5 minutes before each blast.

The applicant for a licence, except for a licence to quarry stone, must enter into a bond of \$240 (£50) or deposit that sum in security for the payment of royalty.

The royalty payable is as follows :—

Kaolin 5 cents (2½d.) per ton.

Sand, Shell, Gravel, etc., 1 cent (½d.) per ton.

The costs of licences for quarrying are as follows :—

Application fee—except

for stone\$5 00=£1 0s. 10d.

Application fee for

store 24= 1 0.

Survey fees—similar to those for Licences of Occupancy.

An annual rental, fixed at the discretion of the Governor, is also payable.

GENERAL PERMISSIONS.

In addition to the above, the Governor may, under special circumstances, authorize the Commissioner of Lands and Mines, on payment of such fees as may

be deemed reasonable, to issue a permission to any person to occupy any Crown Land for any purpose and to cut, gather, take or remove any article growing thereon, on payment of the royalty and subject to such other conditions as the Governor may think fit.

The charge for such a permission shall be such as in each case the Governor may fix, having regard to the purpose for which the permission is sought.

III.—ECONOMICAL.

REGULATIONS

RELATING TO MINING INDUSTRIES.

REGULATIONS RELATING TO THE MINING INDUSTRIES.

The Mining Regulations of the colony relate to gold, silver and precious stones and are simple and generous. In all Titles, Grants, Leases, Licences, etc., the right to obtain mineral oil from any deposit that may exist in or under the land included in the concession is reserved to the Government. A prospecting Licence available for one year from date of issue can be obtained for \$5 (£1 0s. 10d.) and this permits the holder, either by himself or by some properly authorized agent, to travel the country and to locate any number of claims, of a size not exceeding 1,500 feet by 800 feet (27½ acres) for gold and of an area not exceeding 500 acres for diamonds.

CLAIMS.

Claims are located by cutting a boundary line at least four feet wide and putting up posts or beacons at each corner with a board on which must be painted in legible letters the name of the locator, the number of the prospecting licence and the date of location. After the claim licence has been obtained the number of such licence must be added on the board, and a special tablet, obtained at the time the claim licence is issued on payment of 1s., must be affixed to one of the posts of the claim. Each gold claim pays a rental of \$5 (£1 0s. 10d.) per annum and each diamond claim 20 cents (10d.) per acre. These rentals are due on April 1st of each year and if they are not paid by the Tuesday following the third Saturday in June the licences are sold at auction on that day and if not sold are revoked, when the land again becomes open to location. Licences can also be revoked by the Governor for non-working of land and can be "jumped" by any one if the boundaries are not kept open and notice boards kept in position.

EXCLUSIVE PERMISSIONS.

Exclusive Permissions are really Exploration Permissions, and can be obtained for 3 years on the payment of \$10 (£2 1s. 8d.) deposit and an annual rent, payable in advance, of $7\frac{1}{2}$ cents ($3\frac{3}{4}$ d.) per acre. Boundaries must be natural features, such as streams or mountains, or lines must be cut as in locations for ordinary claims. These Exclusive Permissions reserve to the holder the sole right to prospect and locate what claims he desires during the time he holds them, and are of great value to the prospector in a new and untried district. *Bonâ fide* exploration work must be carried on all the time or the permission is liable to cancellation, but the holder can at any time during the period for which the permission is granted cut out and abandon any portion of the area which is not considered profitable.

The terms and conditions under which exclusive permissions are ordinarily granted are as follows:—

1. The permission is not granted for a longer period than 3 years.
2. The area shall in no case be less than 500 acres.
3. Rental is payable in advance and the permission remains in force only as long as the fee is not in arrears.
4. All Mining Claims previously located within the boundaries of the permission area are excluded from the permission and from the surface for which fee is payable.
5. The Grantee may abandon any part or parts of the area granted to him and when he has satisfactorily demarcated the area so abandoned no exploration fees or subsequent fees shall be payable thereon.
6. During the continuance of the exclusive permission the grantee may mark off rectangular areas for the exclusive right of working and the grants may be given him for the same, provided that no such area is less than 1,500 feet by 800 feet.

7. Any area abandoned by the grantee or not allocated to him as a grant for exclusive working before or at the expiration of this exclusive permission will become open for application and location to all persons.
8. Every application for Exclusive Permission is advertised in the *Official Gazette* at the cost of the applicant for three consecutive Saturdays in order to allow of any opposition to the granting of the same being made.

CONCESSIONS.

Mining Concessions or Leases for 99 years or under, can be obtained for any area on payment of \$10 (£2 ls. 8d.) with the application, and an annual rental of 20 cents (10d.) per acre payable in advance on April 1st of each year.

The concessions are suitable in cases where the work to be carried on is of a permanent nature and necessitates the expenditure of large capital, as they are not open to automatic revocation for non-payment of rental nor are they liable to be "jumped" as an ordinary claim licence is liable every June.

The following are the terms and conditions under which Mining Concessions are ordinarily granted for the mining of gold, silver and valuable minerals or of precious stones :—

1. An annual rental of 20 cents (10d.) per acre or part thereof is payable in advance on April 1st.
2. The holder of the concession shall diligently explore such land for gold, silver, etc., unless he has permission to cease work from the Commissioner of Lands and Mines or from the Warden of the district. He is not allowed to use the land for other purposes without the written sanction of the Commissioner of Lands and Mines.
3. The holder of the concession shall, as often as required, furnish true and proper returns

- and statistics or other particulars of the operations to be carried on and results thereof.
4. The boundary lines must be kept clearly marked and the name boards, having marked thereon the name of the holder of the concession, its number, date and area, properly put up.
 5. Aboriginal Indians are allowed the right to camp, hunt and traverse the land of the concession.
 6. Acceptance of rent or royalty cannot be pleaded as a waiver of the right of the Commissioner of Lands and Mines to enforce the observance of the conditions of the concession or of the right of the Governor-in-Council to cancel the concession for any breach thereof.
 7. Permission may be granted to any person or persons to construct a railway across or through any portion of the land comprised in the concession without any right to the holder to compensation or abatement of rental.
 8. If any part of the land is required for the purpose of any township, village, road, canal, railway, railway station and approaches thereto, or tramways, etc., the Commissioner of Lands and Mines may give three months notice in writing that such part will be required, and such part of the land shall cease to be included in the concession, and the holder thereof shall not be entitled to any abatement of rent or compensation.
 9. The holder has to make provision for the disposal of detritus earth, waste refuse or workings so that the same shall not be or become a nuisance, inconvenience or obstruction to any tramway, railway, telegraph line, race drain and creek on private or Crown lands.
 10. The holder shall at the request of the Commissioner of Lands and Mines well and sufficiently bale and pump, draw away and

remove all water from the workings in the land of the concession, which is injurious to the owner or occupier of any adjoining land. He shall also keep the workings free of water as long as he may be required to do so.

11. The owner shall not close up or obstruct any adit or adit tunnel or airway to or from any contiguous mine or mines whereby fresh air is admitted or ventilation promoted.
12. At the end of the term for which the concession is granted or sooner if the concession is cancelled shall deliver peaceable possession of the land to the Commissioner of Lands and Mines and shall remove all tools and appliances within a specified time.
13. All concessions have to be surveyed at the cost of the applicant by a qualified surveyor. The cost of Government survey is 10 cents (5d.) per acre, together with the actual cost of the work and taking the surveyor to and from the spot.

DREDGING CONCESSIONS.

Dredging concessions of rivers and creeks are granted for 99 years or under. The application fee is \$10 (£2 1s. 8d.) and the rental is 10 cents (5d.) per acre payable in advance on April 1st of each year.

The concessions must be surveyed unless the area can be accurately ascertained and the end boundaries defined by some natural feature, but no concessions can be "jumped" for failure to keep the boundaries open. Security must be given that the terms and conditions enforced will be complied with.

The following are the terms and conditions under which dredging concessions are granted :—

1. An annual rental in advance of 10 cents (5d.) per acre.
2. Operations must commence within a reasonable time from the time the concession is granted.

3. Shall not impair fair access to any landing place previously known, shall not deposit tailings from any dredge so as to injuriously affect navigation of river or creek, or on the banks of any river or creek without permission. The grantee shall not moor any dredge, barge, boat or vessel so as to impede navigation or the drainage of claims on the banks.

DISPOSAL AND CONVEYANCE OF GOLD, ETC.

A record showing daily returns of all gold or precious stones obtained must be accurately kept on the claims and a copy of this book must accompany all gold or precious stones taken off the claims for conveyance to Georgetown.

Gold and precious stones can be sold in any district to a person specially licensed to purchase the same. Gold on being conveyed to Georgetown must be taken to the Warden at the nearest gold station and a permit obtained for its conveyance to town. Within 24 hours of its arrival in Georgetown it must be taken to the Department of Lands and Mines where royalty is payable. Precious stones must also be taken to the nearest Government station of the district and a permit obtained for their conveyance to town.

DISPUTES.

All disputes arising under the regulations are settled by the Warden of the district in which they arise, and only the Supreme Court has the power to set aside a Warden's decision after appeal has been made against it.

MINERAL OIL.

Special arrangements now apply to the prospecting for and winning of mineral oil, and these may be found in detail in the "Mining (Mineral Oil) Regulations, 1912." The chief points are :

1. Application for land for exploration as shown on the "Official Exploration Map" and a filing fee of \$10 (£2 1s. 8d.)
2. Upon such application being approved by the Governor, the granting of an Exploration Licence for 2 years.
3. At the end of the period for which the exploration licence has been issued, and provided the licensee has made a geological map of his area and done *bonâ fide* exploration, an application may be made for a Prospecting Licence for a period of 2 years and an area not exceeding 10 sq. miles. A fee of 20 cents (10d.) per acre per annum is payable in advance, on approval of the application, and a royalty on all crude oil of 2s. per ton, and ten per cent. of the crude oil is incurred.
4. Before the Prospecting Licence expires, the holder may, on payment of \$10 (£2 1s. 8d.) and satisfying the Governor that his prospection has led to the discovery of petroleum in commercial quantities, secure a lease of so much of the land comprised within the licence as he may desire or as the Governor approves.
5. No licence or lease may be issued or assigned to any syndicate or company which is not British in its control and organisation.
6. The parts of the Mining Regulations, 1905, referring to surveying, the employment of labourers, sanitary regulations, etc., apply *mutatis mutandis* to all licences and leases issued under the Mineral Oil Regulations.

IV.—EXCURSIONS.

EXCURSIONS.

For more than fifty years inland and coastal communication by water in British Guiana have been in the hands of Messrs. Sproston, Ltd., working under a contract with the Government. At the present time the question of the renewal of the subsidy and of the contract is being debated; and as no definite decision has yet been arrived at it is not possible to give details of fares, starting points, and itineraries which can be guaranteed to be of any use in the immediate future. This article will refer in general terms only to the arrangements in force at the time of publication (March, 1913), and will, it is hoped, be found useful as a rough guide, for it is not probable that any great changes will be made in the main routes and places of call now served by Sproston.

GEORGETOWN TO SUDDIE.

Suddie lies on the "Arabian coast" on the west side of the mouth of the Essequibo river, and is the centre from which Onderneeming with its Government Farm and Experimental Station, the Ituribisce and Capoey lakes and the Pomeroon district can be reached. The steamer leaves Georgetown about 7 a.m. but it is possible by utilising the West Coast railway to catch the boat at Tuschen and so save so early a start. The trip is an extremely pleasant and picturesque one, the steamer skirting the shore of the various islands at the mouth of the Essequibo and calling at Leguan, Wakenaam and Aurora. One arrives at Suddie about mid-day: after a delay of half-an-hour or so for transfer of cargo the return trip is at once commenced and the steamer reaches Georgetown before 6 p.m. The return fare for the day's trip, including three meals on board, is \$3 (12s. 6d.)

GEORGETOWN TO BARTICA.

The steamer leaves Georgetown every Tuesday, Thursday and Saturday and returns every Monday, Wednesday and Friday. There is a launch and boat service from Bartica up the Cuyuni river to Camaria Falls every Monday, Wednesday and Friday; thence another launch runs through to Matope Falls the same day. A very pleasant week-end can be spent on board the steamer at Bartica. The cost of the round trip, with all meals and sleeping accommodation on board, is \$6 (£1 5s.)

GEORGETOWN TO THE NORTH WEST DISTRICT.

The steamer leaves Georgetown for the North West District, Morawhanna and Mount Everard (Barima river) every Tuesday about mid-day, returning to Georgetown on Fridays. There is a special 1st class return fare for the four day trip; this, including meals and sleeping accommodation on board, costs \$12 (£2 10s.) In connection with this trip there is a launch service on the upper Barima river between Mount Everard and Arakaka. There are rest-houses controlled by Sprotons at Mount Everard and Arakaka.

GEORGETOWN TO NEW AMSTERDAM (BERBICE).

The steamer leaves Georgetown for New Amsterdam every Monday and Thursday about 8 p.m. and returns from New Amsterdam every Tuesday and Friday evening. First class return fare, \$2.16c. (9s.). In connection with this route there is a steamer service up the Berbice river from New Amsterdam to Kumaka. The steamer leaves New Amsterdam on Mondays and Thursdays about 7 a.m., arriving at Kumaka at about 9 p.m.; returns from Kumaka on Tuesdays about 9.30 a.m., (arriving at New Amsterdam about 9 a.m. on Wednesdays) and on Fridays at about 5 a.m., (arriving in New Amsterdam at about 6.30 the same evening.) First-class return fare \$2.40 (10s.)

GEORGETOWN TO SPRINGLANDS (COURANTYNE RIVER)
NICKERIE AND PARAMARIBO.

The steamer leaves Georgetown every fortnight : fare to Springlands \$2.40 (10s.); to Nickerie \$3 (12s. 6d.) and Paramaribo \$5 (£1 0s. 10d.)

GEORGETOWN TO WISMAR, ROCKSTONE, TUMATUMARI AND
POTARO LANDING.

Steamer leaves Georgetown for Wismar every week-day about 8 a.m. First-class return fare for two day trip, including all meals on steamer and accommodation at Wismar hotel, \$5.50 (£1 2s. 11d.). Similar week-end trip, three days, \$6.50 (£1 7s. 1d.)

Train leaves Wismar for Rockstone every week-day on the arrival of the steamer about 5.30 p.m. First-class return fare, inclusive, for two day trip ; \$7 (£1 9s. 2d.)

Launch leaves Rockstone for Tumatumari every week-day about 6.30 p.m.

Launch leaves Rockstone for Potaro Landing every week-day about 8 a.m. The first-class fare, without meals or hotel accommodation, from Georgetown to Potaro Landing is \$8 (£1 13s. 4d.)

In connection with the Georgetown-Wismar service a launch runs on the Upper Demerara River between Wismar, Akyma and Mallali. Launch leaves Wismar every Wednesday and Saturday at 6.30 a.m. returning from Mallali every Tuesday and Friday at 8.30 a.m. First-class return fare, Wismar to Mallali, \$2.40 (10s.).

There are rest-houses at Wismar and Tumatumari and a fine hotel at Rockstone, all owned by Sprotons ; inclusive charges for board and lodging about 10s. per day.

GEORGETOWN TO THE KAIETEUR FALL.

It is now possible, thanks to Sprotons, to make the round trip to Kaieteur Fall from Georgetown by Wismar, Rockstone, and Potaro Landing and back in

10 days, Hotel or rest-house accommodation is provided at each stopping place at night and the excursion is made in the most comfortable and healthy conditions, everything—boats, guides, carriers, food, drink and shelter—being provided by the firm. The cost of the trip varies according to the number in the party making it, and can be ascertained on application to Sprostons.

STATISTICAL.

LIST OF BIRDS ABSOLUTELY PROTECTED.

Ant Thrushes and Bush Shrikes (<i>Formicariidae</i>).	Grebes (<i>Podicipedidae</i>).
Babbling Thrushes (<i>Mimidae</i>).	Ground Doves (<i>Peristerinae</i>).
Barbets (<i>Bucconinae</i> and <i>Capitonidae</i>).	Heron (<i>Ardeidae</i>).
Bunyas and Mocking Birds (<i>Icteridae</i>) except Rice Birds (<i>Cassidix oryzivora</i>).	Hoatzins (<i>Opisthocomidae</i>).
Cormorants (<i>Phalacrocoracidae</i>).	Humming Birds (<i>Trochilidae</i>).
Cotingas (<i>Cotingidae</i>).	Jacamars (<i>Galbulidae</i>).
Cuckoos (<i>Cuculidae</i>).	Jays (<i>Corvidae</i>).
Ducklarks (<i>Plotidae</i>).	Kingfishers (<i>Alcedinidae</i>).
Falcons and Hawks (<i>Falconidae</i>).	Manakins (<i>Pipridae</i>).
Finches (<i>Fringillidae</i>).	Motmots (<i>Momotidae</i>).
Fin-foots (<i>Helionithidae</i>).	Owls (<i>Buboninae</i> and <i>Strigidae</i>).
Flamingoes (<i>Phaenicopteridae</i>).	Pelicans (<i>Pelecanidae</i>).
Frigate Birds (<i>Fregatidae</i>).	Petrels (<i>Procellariidae</i>).
Gannets (<i>Sulidae</i>).	Rails and Crakes (<i>Rallidae</i>).
Goatsuckers (<i>Caprimulgidae</i>).	Screamers (<i>Palamedeidae</i>).
Tanagers (<i>Tanagridae</i>).	Sugar Birds (<i>Coerebidae</i>).
	Sun Bitterns (<i>Eurypygidae</i>).
	Swallows (<i>Hirundinidae</i>).
	Swifts (<i>Cypselidae</i>).

BIRDS PROTECTED FROM 1ST APRIL TO 1ST SEPTEMBER.

Caraows (<i>Aramidae</i>).	Spur-wings (<i>Parridae</i>).
Maam and Tinamous (<i>Tinamidae</i>).	Storks (<i>Ciconiidae</i>).
Parrots and Macaws (<i>Psittacidae</i>).	Thick-knee Plovers (<i>Oedicnemidae</i>).
Plovers and Snipes (<i>Charadriidae</i>).	Tooth-billed Partridges (<i>Odontophorinae</i>).
Powis and Marudis (<i>Cracidae</i>).	Warracabas (<i>Psophiidae</i>).
Spoonbills (<i>Plataleinae</i>).	

BIRDS PROTECTED FROM 1ST JANUARY TO 1ST SEPTEMBER.

Ibises (*Ibididae*).

BIRDS PROTECTED FROM 1ST APRIL TO 1ST JULY.

Ducks (*Anatidae*) except in the rice fields.
Pigeons (*Columbidae*).

CABLE COMMUNICATION.

BY WEST INDIA & PANAMA TELEGRAPH COMPANY, LTD.

Offices :—Spencer House, South Place, Finsbury, London.

Museum Buildings : Georgetown, British Guiana.

Office Hours :—From 7 a.m. to 6 p.m. Sundays, 8 a.m. till 10 a.m.
and from 7 p.m. till about 9 p.m.

				s.	d.
<i>Charges</i> :—	To Great Britain	...	per word	5	6
	To Canada...	...	"	4	8
	To United { E. of Mississippi	...	"	4	6
	States { W. of Mississippi	...	"	4	8½

AREA IN CANE CULTIVATION.

	Acres empoldered.	Acres Canes.
1903, 31st March...	158,625	73,193
1904, " ...	158,542	73,837
1905, " ...	156,416	70,880
1906, " ...	155,213	72,391
1907, " ...	159,011	74,427
1908, " ...	159,078	70,896
1909, " ...	154,160	71,310
1910, " ...	150,844	68,766
1911, " ...	148,990	69,736
1912, " ...	151,920	67,762

PRINCIPAL CLUBS, ETC.

THE GEORGETOWN CLUB, LIMITED.

Assembly Rooms, Main Street.

Founded in 1858.

Entrance Fee—\$50. Annual Subscription—Town, \$36; County of Demerary, \$24; Counties of Essequibo and Berbice, \$10.

Visitors, introduced by a member, may be allowed the privileges of the Club for 21 days free, and subsequently, as temporary members, for a period of 6 months on payment of \$5 per month.

GEORGETOWN CRICKET CLUB.

Established 1852.

Club Ground—Bourda.

Match Days—Saturdays and Public Holidays,

Tennis Days—Mondays (Members), Tuesdays (Members and

Lady Visitors), Thursdays (Members), Fridays (Members and Lady Visitors).

Croquet—Mondays, Tuesdays, Thursdays and Fridays.

Entrance Fee—\$15 on election. Annual Subscription—Town Members, \$10; Country Members—County of Demerara, \$7.50; Counties of Essequibo and Berbice, \$5.

A Lawn Tennis Tournament, open to members and ladies introduced by members, is usually held annually under the auspices of the Club. Visitors may be introduced by Members, for 1 month free: for 2 months in payment of \$3; for 3 months (the limit) \$5.

Hockey and Football are played at this Club.

DEMERARA GOLF CLUB.

Established 1910.

Links—Turkeyen, $4\frac{1}{2}$ miles from Georgetown. Fare by train 9d. return 1st class; by cab (wait and return) about 10s.

Annual subscription: within 10 miles of Links, \$10; over 10 but under 25 miles, \$7.50; over 25 miles, \$5. Ladies are admitted as Associate Members.

Visitors introduced by a member, pay—

For 1 month	... \$3 00
„ 2 weeks	... 2 00
„ 1 week	... 1 20
„ 1 day	... 50

The privilege may be extended to three months on payment of \$3 per month.

BRITISH GUIANA CHESS CLUB.

Established 1888.

Subscriptions—Entrance Fee, \$1.20; Monthly Subscription: 48 cents.

Meetings in the Club-room in Main Street every Saturday afternoon, and Tuesdays and Thursdays evenings.

Chess Tournaments are held continuously throughout the year, and a match once a year to determine the “Champion” of the Club. Visitors are welcomed.

DEMERARA ROWING CLUB.

Boat House, La Penitence.

Entrance Fee—\$5. Annual Subscription—Town Members, \$10, Country Members, \$3. Subscribers, \$5. Visitors may be introduced by members.

DEMERARA TURF CLUB.

Incorporated 1910.

Office : 45, Water Street.

Race Course : Bel Air Park, Georgetown.

Entrance Fee : Life Members only, \$100. There is no annual subscription.

Details of special arrangements for Visitors on application to the Hon. Secretary.

ROYAL AGRICULTURAL AND COMMERCIAL SOCIETY.

A Society instituted in March, 1844, and later incorporated by Ordinance 19 of 1866. It possesses an Exchange Room, a Reading Room, a Museum and a Library, and takes the leading journals, newspapers and periodicals of the world. Its library comprises 30,000 volumes collected since April, 1864, at which time the previous collection was destroyed by fire.

Annual subscription—Members, \$10; Associates, \$5, which entitles them to nearly the same privileges as members, with the exception of not being eligible as office-bearers and admitting visitors. Ladies are also admitted at \$10 and \$5 annually and children at 50 cents a quarter.

The Society's Museum contains most of the natural products of the colony, including a good collection of animals, a very fine series of insects, Indian curios and stone implements, mineralogical specimens, photos and views. There is also a small collection of foreign animals and an economic section containing products from all parts of the world. The rooms are opened on week-days from 7 a.m. to 6 p.m. and on Sundays and holidays from 10 a.m. to 4 p.m. The Museum is open from 10 a.m. to 4 p.m. on week-days and from 3 p.m. to 5 p.m. on Sundays.

CUSTOMS DUTIES.

The Colonial duties of Customs are fixed annually by Ordinance. Under the Ordinance for the financial year commencing 1st April, 1912, and ending 31st March, 1913, an *ad valorem* duty of 15 per cent. with a surtax of 10 per cent. is payable on all articles not enumerated in the schedule of articles liable to a specific duty or those enumerated in the table of exemptions from duty. The table of specific duties is too long to give here but it may be mentioned that guns pay the usual duty of 15 per cent. and 10 per cent. surtax, revolvers and dogs a specific duty of \$5 and 5 per cent. surtax. A police permit is necessary before a dog can be landed. A list of the more important exemptions is appended.

LIST OF IMPORTANT EXEMPTIONS.

1. Agricultural Implements passed by the Comptroller of Customs as such.
2. Belting for machinery.

3. Cattle which are proved to the satisfaction of the Comptroller of Customs to be imported for breeding purposes.
4. Chemicals and other substances, which the Comptroller of Customs is satisfied are imported for the purification of water.
5. Chemicals necessary for the cyanide process in gold-mining.
6. Cotton seeds.
7. Machinery, comprising the following :—
 Brick and tile-making machinery ;
 Cotton gins ;
 Iron cane punts, cane-carrier and elevator chains, iron bridges, and grating bars ; locks and sluices for sea defences, water supply or drainage of land ;
 Locomotive engines and railway plant ;
 Launches of all kinds.
8. Machinery and wire for electric lighting and railway and power plant, motors and their parts, controllers and their parts, rheostats and rails and their appendages for electric street lighting and locomotion.
9. Machinery imported for use in mining operations, including trucks and rails, wire cables, wheels and pulleys, ore buckets, battery perforated metal screens, belt conveyors, automatic samplers, amalgamated plates, pipes and drill steel ; also machinery and tanks for use in cyaniding, passed by the Comptroller of Customs as such. Machinery imported for the drainage of land or in the manufacture or preparation of the produce of raw materials, or in the manufacture or preparation of manures ;
10. Machinery for saw-mills, foundries and factories of whatever kind ;
11. Machinery for steam and motor boats, launches and barges, and plates, angles and other materials and appliances for the constructions of steam-boats and barges ;
12. Machinery for the reaping and preparation for the market of rice ;
13. Pans, teaches, tanks and other vessels imported for use exclusively in the manufacture of sugar or for the storage or supply of water ;
14. Steam boilers of every description, and steam boiler plates, tubes, and lagging ; and ploughs, harrows, steam diggers and steam dredgers, mowing machines, when the Comptroller of Customs is satisfied that such are imported for agricultural purposes, chimneys or smoke stacks imported as an integral portion of any machinery exempted from duty.
15. Manures, sulphate of ammonia, nitrate of soda, lime, and other substances which the Comptroller of Customs is satisfied are imported for use as manure or as remedies for diseases of, or preventives of insect attacks on, plants.
16. Pipes to be exclusively used for the sinking of artesian wells.

17. Poultry.
18. Printed books not subject to duty under Ordinance No. 3 of 1861, and manuscript.
19. Sewing Machines.
20. Seeds (garden) ; bulbs and roots, trees, plants, vines, and seeds and grains of all kinds for propagation or cultivation.
21. Tools used by mechanics, woodcutters, miners and gold-diggers, passed by the Comptroller of Customs as such.

DRAWBACKS.

Persons using duty-paid oil as fuel for the purpose of driving any machinery within the colony shall be entitled to drawback of duties at a rate per gallon equal to the difference between the amount of duty per gallon and one cent on all such oil which has been so consumed as fuel ; and on candles used in mining, the whole amount paid as duty.

EXEMPTION.

The Comptroller may grant permission to any person to bring into the colony any goods, wares or merchandise without payment of duty thereon, provided such goods are for temporary use only, subject to the conditions that :—

- (a.) Such goods shall be taken out of the colony within six months of the date of such permission ; and
- (b.) The person granted such permission shall deposit with the Comptroller the amount of the duty on such goods—such deposit to be forfeited if the goods are not taken out of the colony within the six months stipulated in the permission.

IMMIGRATION STATISTICS.

Table shewing the number of Immigrants from all parts.

Year.	West Indian Islands.	Madeira.	East Indies.	Azores.	Africa.	England.	China.	Cape de Verde.	Malta.	United States.	Total.
1835	157	429	...	...	...	...	...	...	...	...	586
1836	1,427	...	...	...	...	...	...	...	...	...	1,427
1837	2,150	...	...	...	...	...	...	...	...	...	2,150
1838	1,266	...	406	...	91	...	...	...	...	...	1,763
1839	192	...	...	...	...	...	...	...	208	...	400
1840	2,900	...	...	...	...	...	...	...	70	...	2,970
1841	2,745	4,297	...	...	1,102	...	...	...	...	...	8,144
1842	506	432	...	...	1,829	...	...	...	...	...	2,767
1843	180	45	...	...	325	...	...	...	...	...	550
1844	225	140	...	...	523	...	...	...	...	...	918
1845	722	668	816	...	1,425	...	...	...	...	...	3,631
1846	428	5,975	4,019	...	1,097	...	...	...	...	...	11,519
1847	...	3,761	3,461	...	565	...	...	...	...	...	7,787
1848	...	300	3,545	...	1,697	...	...	...	...	...	5,542
1849	...	86	...	...	111	...	...	...	...	...	197
1850	...	1,040	...	...	1,219	...	...	...	...	...	2,259
1851	...	1,101	517	164	453	21	...	...	...	...	2,256
1852	...	1,009	2,805	...	268	...	...	...	...	...	4,082
1853	...	2,539	2,021	...	276	...	647	...	...	...	5,483
1854	...	1,058	1,562	...	...	...	...	...	...	...	2,620
1855	...	1,055	2,342	...	...	...	...	...	...	...	3,397
1856	...	180	1,258	...	65	...	...	766	...	...	2,269
1857	...	342	2,596	...	...	...	...	...	...	...	2,938
1858	...	1,484	1,404	...	281	...	...	53	...	...	3,222
1859	...	684	3,426	...	...	...	699	...	...	...	4,809
1860	...	135	5,450	...	625	...	1,942	...	...	...	8,152
1861	...	35	3,737	...	40	...	3,368	...	...	...	7,180
1862	...	29	5,625	...	558	...	2,590	...	...	...	8,802
1863	69	...	2,354	...	373	...	396	...	...	...	3,192
1864	4,297	...	2,709	...	390	...	509	...	...	...	7,905
1865	2,482	118	3,216	...	42	...	1,691	...	...	...	7,549
1866	757	134	2,526	...	...	...	789	...	...	...	4,206
1867	355	304	3,909	...	...	...	...	...	...	...	4,568
1868	559	219	2,528	...	...	...	...	...	...	...	3,306
1869	980	240	7,168	...	...	...	...	...	...	...	8,388
1870	631	454	4,943	...	...	...	...	...	...	...	6,028
1871	591	260	2,706	...	...	...	...	...	...	...	3,557
1872	2,697	367	3,556	...	...	...	...	...	...	...	6,620
1st Jan. to 30th June, 1873	2,412	26	3,656	...	...	...	...	...	...	...	6,094
Forward..	28,758	28,946	84,261	164	13,355	21	12,631	819	208	70	169,233

IMMIGRATION STATISTICS—(Continued.)

Table shewing the number of Immigrants from all parts.

Season.	West Indian Islands.	Madeira.	East Indies.	Azores.	Africa.	England.	China.	Cape de Verde.	Malta.	United States.	Total.
For ward	28,758	28,946	84,261	164	13,355	21	12,631	819	208	70	169,233
1873-1874..	1,692	208	8,301	...	...	...	388	...	...	...	10,589
1874-1875..	990	164	3,887	...	...	...	...	...	...	...	5,041
1875-1876..	414	100	3,834	...	...	...	...	...	...	...	4,348
1876-1877..	606	90	3,982	...	...	...	...	...	...	...	4,678
1877-1878..	1,066	203	8,118	...	...	...	...	...	...	...	9,387
1878-1879..	1,269	293	6,426	...	...	...	515	...	...	...	8,503
1879-1880..	527	243	4,506	...	...	...	...	...	...	...	5,276
1880-1881..	623	216	4,355	...	...	...	...	...	...	...	5,194
1881-1882..	326	182	3,166	...	...	...	...	...	...	...	3,674
1882-1883..	875	...	3,016	...	...	...	...	...	...	...	3,891
1883-1884..	1,061	...	2,731	...	...	...	...	...	...	...	3,792
1884-1885..	1,123	...	6,209	...	...	...	...	...	...	...	7,332
1885-1886..	509	...	4,796	...	...	...	...	...	...	...	5,305
1886-1887..	...	...	3,928	...	...	...	...	...	...	...	3,928
1887-1888..	...	...	2,771	...	...	...	...	...	...	...	2,771
1888-1889..	...	...	3,573	...	...	...	...	...	...	...	3,573
1889-1890..	...	...	3,432	...	...	...	...	...	...	...	3,432
1890-1891..	267	...	5,229	...	...	...	...	...	...	...	5,496
1891-1892..	707	...	5,072	...	...	...	...	...	...	...	5,779
1892-1893..	...	...	4,693	...	...	...	...	...	...	...	4,693
1893-1894..	...	...	5,932	...	...	...	...	...	...	...	5,932
1894-1895..	...	...	7,114	...	...	...	...	...	...	...	7,114
1895-1896..	...	...	1,882	...	...	...	...	...	...	...	1,882
1896-1897..	...	...	2,408	...	...	...	...	...	...	...	2,408
1897-1898..	...	...	1,202	...	...	...	...	...	...	...	1,202
1898-1899..	...	...	2,399	...	...	...	...	...	...	...	2,399
1899-1900..	...	...	4,961	...	...	...	...	...	...	...	4,961
1900-1901..	...	...	3,810	...	...	...	...	...	...	...	3,810
1901-1902..	...	...	4,245	...	...	...	...	...	...	...	4,245
1902-1903..	...	...	1,947	...	...	...	...	...	...	...	1,947
1903-1904..	...	...	2,967	...	...	...	...	...	...	...	2,967
1904-1905..	...	...	1,314	...	...	...	...	...	...	...	1,314
1905-1906..	...	...	2,704	...	...	...	...	...	...	...	2,704
1906-1907..	...	...	2,257	...	...	...	...	...	...	...	2,257
1907-1908..	...	...	1,855	...	...	...	...	...	...	...	1,855
1908-1909..	...	...	1,799	...	...	...	...	...	...	...	1,799
1909-1910..	...	...	2,508	...	...	...	219	...	...	...	2,727
1910-1911..	...	...	2,173	...	...	...	236	...	...	...	2,409
1911-1912..	...	...	1,768	...	...	...	200	...	...	...	1,968
Total ...	40,813	30,645	231,521	164	13,355	21	14,189	819	208	70	331,815

E. Indian Immigrants resident on Estates on September 30, 1912—

Under Indenture

... 10,233

Unindentured (including children)

... 55,073

65,306

IMPORTS AND EXPORTS.

		Imports.	Exports.
		£	£
1903-1904	...	1,656,023	1,810,038
1904-1905	...	1,537,591	1,991,048
1905-1906	...	1,662,205	1,831,479
1906-1907	...	1,690,804	1,759,280
1907-1908	...	1,765,358	1,545,303
1908-1909	...	1,628,402	2,014,176
1909-1910	...	1,774,458	1,985,338
1910-1911	...	1,749,767	1,820,198
1911-1912	...	1,786,574	2,172,766

VALUE OF PRINCIPAL ARTICLES OF EXPORT.

	Sugar.	Rum.	Molasses.	Gold.	Timber.	Charcoal.	Balata.	Cattle Food and Molascuit.	Rice.
	£	£	£	£	£	£	£	£	£
1903-04...	1,121,142	101,820	9,109	327,527	19,574	7,925	45,186	12,584	93
1904-05...	1,280,596	62,713	14,986	352,124	24,434	8,360	38,043	36,710	356
1905-06...	1,208,153	121,729	8,932	352,030	24,938	6,758	40,311	41,864	148
1906-07...	1,059,503	108,464	11,829	319,222	15,556	7,106	50,106	39,833	18,588
1907-08...	1,004,026	96,860	4,103	239,229	20,272	8,716	76,778	21,547	39,880
1908-09...	1,257,827	185,852	6,849	271,300	16,433	8,164	98,128	23,193	50,064
1909-10...	1,205,216	149,186	15,234	229,517	16,224	7,789	97,507	23,141	64,617
1910-11...	1,040,465	95,216	7,542	197,246	19,641	8,488	139,624	21,931	50,603
1911-12...	1,380,542	115,820	5,763	190,733	15,566	8,200	140,281	11,693	40,163

PRINCIPAL EXPORTS OF COLONIAL PRODUCE.

Year.	Sugar.	Rum.	Molasses.	Timber.	Charcoal.	Cocoanuts.	Molascuit and Cattle Food.	Rice.
	Tons.	Galls.	Galls.	Cub. ft.	Bags.	No.	Tons.	lbs.
1903-1904...	125,940	3,949,886	291,507	273,542	75,694	46,829	2,780	18,740
1904-1905...	106,716	2,671,581	423,154	293,315	79,913	561,334	8,967	61,255
1905-1906...	116,550	3,536,784	276,661	276,765	64,211	71,129	11,405	29,728
1906-1907...	114,051	3,342,896	344,127	170,985	65,919	49,990	12,961	3,474,512
1907-1908...	100,737	2,640,988	114,722	232,669	83,241	631,705	9,576	6,977,877
1908-1909...	115,213	3,501,185	146,885	191,409	80,014	237,669	9,277½	8,500,677
1909-1910...	108,533	3,017,934	293,630	198,179	73,814	711,512	9,256½	12,294,815
1910-1911...	100,954	2,515,176	179,163	256,845	78,818	1,023,631	9,230	8,474,214
1911-1912...	99,368	3,022,831	146,740	239,193	73,520	1,517,418	5,102	6,686,820

EXPORTS OF OTHER ARTICLES OF COLONIAL PRODUCE.

Year.	Gold.	Shingles.	Balata.	Cacao.	Isinglass.	Gums.	Fibre.	Diamonds.	G. H. Lumber.	Corn.	Cattle.	Hides.	Plantains.	Rubber.
	ozs.	No.	lbs.	lbs.	lbs.	lbs.	lbs.	carats.	feet.	lbs.	Head.	No.	Bchs.	lbs.
1903-1904 ...	90,207	1,837,050	531,399	123,081	15,932	10,576	...	10,736	28,042	200	369	4,799	238	...
1904-1905 ...	94,617	2,701,750	501,509	96,817	16,247	8,533	...	10,478	27,087	900	970	5,047	...	951
1905-1906 ...	95,044	1,476,500	550,691	57,097	17,588	12,368	...	4,203	29,999	6,120	1,588	7,523	...	4,114
1906-1907 ...	86,125	2,075,200	634,242	50,033	16,124	7,253	...	4,113	49,841	...	1,389	4,018	46	2,563
1907-1908 ...	65,717	2,537,400	973,269	60,105	16,154	364	...	1,863	69,304	7,400	1,438	4,542	...	6,873
1908-1909 ...	74,001	2,302,450	1,090,405	101,617	14,287	1,996	...	5,063 $\frac{3}{8}$	55,694	4,200	1,219	2,960	...	5,751
1909-1910 ...	63,281	2,322,600	1,034,076	75,355	18,062	5,981	...	7, 95 $\frac{1}{16}$	...	1,800	1,246	4,110	...	6,369
1910-1911 ...	55,543	2,996,600	1,162,588	46,347	17,833	3,124	...	3,009 $\frac{1}{16}$	...	...	1,169	5,644	...	1,156 $\frac{1}{4}$
1911-1912 ...	51,196	1,971,000	1,101,593	82,800	18,908	4,311	...	6,976	42,555	23,182	922	4,316	...	3,104

POSTAL INFORMATION.

TOWN DELIVERIES.

On week-days there are three house-to-house deliveries in Georgetown, *viz.*, at 7 a.m., the whole city ; 11 a.m., the whole city ; 4 p.m., the whole city, except Albouystown, Lodge and Wortmanville. At New Amsterdam there are two house-to-house week-day deliveries ; 7 a.m., and 12.30 p.m., and deliveries as far as Kendalls, East Coast, on Mondays and Thursdays, and Sandvoort on Tuesdays, Thursdays and Saturdays.

INTERCEPTION OF CORRESPONDENCE.

A fee of 12 cents is charged to every person requiring inland correspondence or correspondence arriving by mail steamer, or both, detained in Georgetown and delivered either on application at the General Post Office or otherwise, or sent to an address other than that to which it is directed.

UNREGISTERED PACKETS.

The Government considers itself relieved of responsibility to make enquiry in respect to the loss of unregistered packets containing money or other valuables.

NEWSPAPERS.

A packet of newspapers must not exceed two pounds in weight, two feet in length and one foot in width and depth.

No book-packet may exceed 2 lbs. in weight nor be above 18 inches in length and 9 inches in width and depth.

POSTE RESTANTE.

There is a *poste restante* for strangers and travellers at the General Post Offices in Georgetown and in New Amsterdam where letters "to be called for" can be obtained. No letters are taken in "to be called for" at the branch receiving offices, and any so directed and posted will be sent to the returned letter office to be returned to the writers.

Strangers are not as a rule allowed to use the *poste restante* for more than two months, at the end of which time they are expected to have their letters sent to a private address.

PERIOD FOR WHICH LETTERS ARE KEPT.

Letters from abroad addressed to the *poste restante*, Georgetown, are retained for one month after which time they are advertised in the *Official Gazette*, and if not claimed within one month from the date of publication they are sent to the returned letter office for disposal in the usual manner.

FOREIGN POST.

Closing of Mails :—Notice of closing mails is given as early as possible through the newspapers and by notices posted up in the Post Offices.

LETTERS.

The postage on letters for the Union Countries is 5 cents for the first oz. and 3 cents for every succeeding oz. or part thereof except in the United Kingdom and certain British colonies, &c., to which the postage is 2 cents to every ounce or part thereof.

The limits of size for packets addressed to the United Kingdom and British colonies or possessions or to non-Union countries are 2 feet in length by one foot in width or depth, but to Foreign countries in the Postal Union the length is limited to 18 inches; packets in the form of a roll may not exceed 2 feet 6 ins. in length and 4 inches diameter. The limits of weight are 11 lbs. for British Colonies and possessions and for non-Union countries; and 4 lbs. for other countries.

MONEY ORDERS.

The rate of commission charged on Inland Money Orders and on orders drawn on any office in the Dominion of Canada is 2 cents for each \$2.40 or portion of that sum. No Inland Money Order is issued for a higher sum than \$100.

The commission charged on all foreign orders except to Canada is 4 cents for each 10s. or portion of that sum. There is also a "through charge" of 3d. on every £5.

INLAND TELEGRAPH ORDERS.

Orders may be transmitted by telegraph to any money order office having telegraphic communication. The commission payable on such order is 4 cents on every 10s. or portion of that sum, *plus* the cost of telegram

BRITISH POSTAL ORDERS.

British Postal Orders of the form as issued by the Imperial Post Office are obtainable for the transmission of small sums from the colony to the United Kingdom and British colonies and possessions, at the General Post Office, any money order office and at such other district offices in the colony as may from time to time be arranged for by the Postmaster General.

INLAND TELEGRAMS.

The charge for telegrams throughout British Guiana is 12 cents for the first 12 words and 6 cents for each additional 6 words or part of that number. The name and the address of the receiver, also that of the sender, if telegraphed, are counted. The receiver's name and address must consist of not less than two words.

Telegrams are delivered free within one mile of the nearest delivery office. When the addressee resides beyond the free delivery boundary a charge of 6 cents a mile or part of a mile is made to the sender. The charge is calculated from the boundary of the district within which portorage is levied.

All telegraph offices close at 5.30 p.m., and telegrams handed in after 5.15 p.m. therefore run the risk of not reaching

their destination until the following morning. Postmasters may accept telegrams after the usual hours, provided that the terminal office is open and its attention can be gained. Upon each telegram so accepted, they are allowed to charge the following gratuities in addition to the cost of the message :—

12 cents to the officer dealing with the message at the forwarding office.

12 cents to the officer dealing with the message at the receiving office.

12 cents to the officer dealing with the message at the transmitting office (if the message has to be transmitted.)

8 cents to the messenger who has to deliver the telegrams.

Telegrams addressed to places outside the colony, are accepted on payment of the Inland rate, *plus* the rate chargeable from Georgetown according to the tariff of the Cable Company.

TELEPHONE EXCHANGE SYSTEMS.

Georgetown Exchange.—(Metallic Circuit) for 600 renters—Continuous night and day service.

New Amsterdam Exchange.—(Single Wire) for 100 renters—Hours of attendance week-days 6 a.m. to 10 p.m., and Sundays 8 a.m. to 10 a.m. : 3 p.m. to 9 p.m.

RAILWAYS.

There are three lines of Railways, viz. :

1. From Vreed-en-Hoop, on the West Bank of the Demerara River, opposite Georgetown, to Greenwich Park on the West Coast of Demerara—a distance of 15 miles. Gauge of line 3' 6". A steam ferry connects Vreed-en-Hoop with Georgetown.

2. From Georgetown to Rosignol at the mouth of the Berbice River opposite to the town of New Amsterdam. Length of line 60½ miles. Gauge 4' 8½". Rosignol is connected with the town of New Amsterdam by steam ferry.

3. The Demerara-Essequibo Railway which runs from Wismar on the left bank of the Demerara River to Rockstone on the right bank of the Essequibo River, a distance of 18½ miles. Metre gauge. Constructed and worked by Sproston, Limited, to provide expeditious and safe means of access to the Potaro gold-fields on the Upper Essequibo River, the route *via* the Essequibo below the terminus of the Railway being obstructed by a series of falls dangerous and tedious to navigate. There is daily communication by steamer between Georgetown and Wismar, and launch services carrying passengers and freight connect Rockstone, the Essequibo River terminus, with Tumatumari and Potaro Landing, stopping at other places on the way.

RAINFALL AT THE BOTANIC GARDENS, 1880-1912.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Means.
	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts	ins. pts
1880	11.19	13.08	8.75	1.57	11.88	10.55	2.81	4.76	12	2.78	8.21	1.87	78.17	6.51
1881	7.24	1.10	2.81	6.67	16.03	9.99	4.53	6.32	6.08	1.14	10.34	16.67	87.32	7.28
1882	7.52	1.44	8.80	7.37	18.16	10.34	9.37	5.81	1.71	6.16	6.26	13.00	94.80	7.81
1883	3.77	2.92	1.64	7.78	3.75	12.98	14.78	5.28	8.61	1.49	7.5	3.84	62.84	5.24
1884	9.25	10.80	3.11	3.73	13.38	11.87	7.61	4.19	1.11	...	...	10.39	74.42	6.20
1885	3.27	2.98	7.4	3.10	3.35	13.35	12.22	3.62	3.19	1.50	1.06	10.67	59.65	4.92
1886	7.80	6.24	2.12	2.63	13.01	11.80	9.81	8.38	4.31	1.35	11.04	20.96	99.55	8.29
1887	2.45	16.39	7.48	6.40	5.93	6.91	10.32	2.72	1.22	5.2	1.12	7.07	84.28	7.02
1888	3.80	8.13	8.33	13.88	15.82	5.47	10.32	5.33	3.80	3.1	9.0	10.80	83.39	6.95
1889	8.45	3.07	1.83	12.10	11.09	23.23	19.38	11.21	4.54	1.88	10.38	18.36	123.52	10.29
1890	25.11	14.56	2.38	20.11	17.91	13.17	10.90	5.71	3.18	1.6	2.97	9.47	125.63	10.47
1891	19.14	10.08	8.42	3.06	12.17	5.14	9.07	5.57	5.3	3.63	3.46	32.38	109.66	9.14
1892	9.15	20.72	9.43	12.93	7.78	24.38	11.40	8.05	5.79	1.20	5.06	12.14	128.03	10.67
1893	11.73	12.91	17.18	4.39	14.72	13.68	15.50	7.74	4.80	1.13	8.40	22.97	135.24	11.27
1894	7.68	9.41	4.88	6.53	7.08	12.11	10.21	4.04	9.1	2.68	10.85	9.02	85.38	7.11
1895	16.45	1.60	5.80	2.83	11.58	9.32	9.65	4.89	4.5	2.98	9.73	7.28	82.56	6.88
1896	2.40	2.19	4.57	4.47	14.27	18.93	10.13	6.47	1.39	4.03	1.80	10.18	81.03	6.75
1897	1.75	2.40	2.51	3.86	12.61	14.60	13.68	6.35	4.21	8.28	16.16	7.99	94.52	7.87
1898	9.25	3.77	22.73	13.63	10.61	13.61	11.09	7.19	4.88	3.28	3.25	17.97	121.86	9.32
1899	12.60	3.21	4.05	1.24	2.13	7.30	13.48	1.96	2.36	7.5	2.7	1.35	52.70	4.39
1900	13.91	10.69	6.51	8.41	9.84	10.35	9.75	5.01	1.12	2.00	4.45	6.92	88.84	7.41
1901	92	1.13	5.14	3.13	11.25	12.15	7.24	10.23	7.18	3.48	6.74	14.27	82.88	6.81
1902	12.53	6.62	17.67	6.95	6.76	10.14	9.58	6.00	3.71	2.29	6.65	5.16	94.36	7.80
1903	5.24	2.76	8.06	10.17	16.94	22.05	7.83	5.48	7.56	9.2	4.18	14.14	104.43	8.70
1904	10.56	2.63	12.17	12.98	8.22	7.47	8.95	1.84	2.72	1.08	1.92	13.21	86.75	7.15
1905	9.81	3.34	4.83	4.07	11.12	10.58	7.81	4.25	4.31	2.14	3.82	15.49	77.70	6.48
1906	2.39	4.19	3.71	13.81	13.89	10.20	14.07	10.16	2.31	1.93	7.03	11.02	95.51	7.96
1907	15.14	9.77	17.24	10.13	18.12	11.61	6.75	5.21	1.91	0.42	6.57	3.37	109.24	9.10
1908	3.71	3.68	7.74	4.15	14.21	6.87	13.45	10.40	0.89	3.09	6.51	9.04	89.74	7.48
1909	7.80	11.96	11.28	4.52	11.70	13.18	14.62	6.86	1.95	5.65	2.80	16.33	107.95	8.89
1910	8.06	7.95	10.00	7.86	10.81	14.74	11.17	14.76	6.69	2.72	3.76	3.00	101.46	8.46
1911	10.17	9.13	14.04	8.43	11.13	12.08	9.63	4.00	5.55	4.02	2.30	2.41	87.89	7.32
1912	1.23	46	1.28	6.26	9.08	8.21	11.24	8.17	1.57	1.89	4.03	16.45	69.87	5.82
Means ...	8.36	6.78	7.49	7.25	11.50	12.06	10.61	6.31	3.01	2.33	5.26	11.46	91.23	7.70

AVERAGE YEARLY RAINFALL AT COASTAL RECORDING STATIONS, 1900-1911.

	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
BEBBICE—												
Skeldon	90.43	67.74	101.75	89.21	73.97	67.26	60.71	112.37	97.58	93.68	85.53	86.93
Springlands	92.41	73.62	97.07	89.98	76.72	81.20	62.81	121.78	115.62	94.35	89.11	73.79
Port Mourant	74.44	53.14	56.95	74.48	48.80	56.08	74.94	94.08	91.73	83.91	85.99	64.80
Albion	86.16	51.66	61.04	70.89	47.75	54.96	71.80	93.80	71.92	79.74	88.35	63.68
Friends	98.28	80.35	106.64	130.33	103.86	64.29	82.98	102.76	84.57	101.93	93.75	89.80
Mara ...	88.38	...	83.74	100.92	74.48	74.10	98.63	117.14	111.91	101.99	103.84	78.74
Providence	...	82.08	74.25	107.22	76.50	68.99	87.04	107.07	85.64	104.88	92.44	90.97
Blairmont	90.87	70.62	62.13	89.73	70.56	70.45	78.30	97.72	85.63	100.57	96.66	84.63
Bath ...	85.15	61.99	77.22	92.83	57.72	64.73	86.83	93.74	73.85	70.60	84.70	65.13
Means	...	68.39	80.10	93.95	70.04	65.78	78.23	105.82	90.94	92.32	91.15	75.31
DEMERARA—												
Enmore	77.10	58.50	73.51	70.72	71.03	58.60	100.89	98.21	78.18	106.23	93.75	85.06
Mon Repos	72.47	62.42	75.71	86.21	77.15	68.28	99.10	97.12	77.12	...	90.77	77.17
Vryheid's Lust	73.80	61.97	84.79	100.86	93.36	70.03	129.75	132.45	102.64	160.36	122.08	99.50
Ogle	79.92	72.57	94.71	110.26	81.50	64.62	98.79	113.80	83.17	107.87	91.16	80.23
Providence	95.78	85.54	92.49	115.30	92.81	81.64	87.04	133.95	100.08	...	108.48	102.13
Diamond	107.80	92.49	106.19	106.93	88.01	89.34	92.80	130.43	101.06	113.98	101.81	104.52
Schoon Ord	89.57	86.70	86.94	110.71	99.26	86.93	98.33	116.45	98.04	118.40	103.17	90.95
Cornelia Ida	96.65	81.40	109.96	97.76	95.75	71.43	92.09	118.40	86.52	107.64	112.68	97.14
Leonora	97.80	96.67	136.25	110.50	85.53	79.37	100.57	129.04	88.30	106.37	106.89	92.65
De Kinderen	90.41	87.81	105.79	107.26	87.50	78.15	89.69	119.31	88.47	110.88	104.65	109.17
Tuschen	103.05	106.48	117.28	118.73	102.24	94.81	102.70	112.40	92.95	92.15	117.07	117.11
Means	...	81.13	98.51	103.11	88.56	76.65	99.25	118.32	90.59	113.76	104.77	95.97
ESSEQUIBO—												
Marionville	100.85	101.27	114.93	115.93	132.42	103.95	106.86	165.58	112.34	132.90	132.49	116.97
Golden Fleece	135.43	96.41	123.41	104.29	119.30	73.55	91.87	114.93	83.09	103.60	108.60	99.00
Taymouth Manor	...	81.28	87.28	93.59	71.66	76.99	76.99	111.47	83.11	88.79	107.60	84.80
Anna Regina	...	78.94	76.91	...	90.12	83.22	84.96	121.07	82.87	100.05	120.40	89.97
Means	118.14	89.47	100.63	100.72	108.88	83.09	90.17	125.76	90.35	106.34	117.27	97.68

AVERAGE MONTHLY AND YEARLY RAINFALL RECORDED AT 17 INLAND STATIONS
OF BRITISH GUIANA.

STATIONS.	Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTALS.
Christianburg	1900-1911	7.21	5.44	8.82	10.54	13.35	13.38	12.65	11.00	4.99	4.44	6.23	8.43	106.48
Look Out ...	1906-1911	13.97	11.54	15.18	11.75	20.15	20.53	18.34	12.92	9.56	4.89	7.39	12.64	158.88
H.M.P.S., Mazaruni	1900-1911	6.37	5.40	7.69	8.52	10.17	14.03	14.11	9.27	8.71	5.60	9.09	7.72	106.68
Bartica ...	1896-1911	6.34	5.22	7.76	8.22	11.34	11.10	12.55	6.20	5.64	4.50	6.05	7.22	92.14
Matopo ...	1896-1911	6.65	5.15	6.87	7.95	10.16	9.62	7.58	7.07	4.51	4.01	5.51	9.10	84.19
Tumatumari	1896-1911	9.08	8.14	11.24	12.34	16.10	14.82	12.15	7.83	3.49	3.51	6.06	7.04	107.80
Itaki, Mazaruni	1896-1911	6.97	5.63	8.92	9.43	13.31	12.10	12.01	8.39	5.15	4.04	6.30	8.82	98.07
Puruni ...	1897-1902	6.43	5.58	9.13	8.35	10.67	10.92	8.79	8.62	4.55	3.68	5.19	6.54	88.45
Macaseema...	1900-1905	7.66	4.72	8.75	7.47	11.34	10.94	7.85	6.09	4.11	3.85	8.89	14.12	93.72
Marlborough	1907-1909	14.70	6.19	13.55	9.22	17.05	19.61	16.52	11.82	5.14	3.68	6.78	7.54	131.80
Acquero, Moruca	1905-1911	10.22	6.29	10.10	8.31	13.97	17.03	13.37	9.70	5.78	4.97	9.90	14.79	124.43
Baramani ...	1895-1911	6.33	5.32	7.11	6.33	8.55	15.80	11.70	9.84	5.99	5.87	8.97	11.51	107.32
Morawhanna	1891-1911	10.40	6.65	7.06	7.53	13.67	17.71	13.32	10.21	6.19	6.31	8.37	16.85	124.27
Issororo Exptl. Station	1908-1911	8.56	8.88	6.16	7.29	8.85	18.61	15.19	10.00	10.65	10.12	10.71	8.24	123.26
Koriabo ...	1895-1906	7.07	3.44	6.88	5.44	10.17	11.68	8.70	7.79	5.60	5.20	6.45	10.16	88.52
Arakaka ...	1895-1911	6.84	5.04	6.54	7.04	10.18	11.48	9.62	9.06	5.54	4.84	6.64	8.66	91.48
Towakaima	1908-1911	6.76	7.12	6.37	8.01	9.15	8.89	10.09	6.09	4.33	5.72	6.04	7.59	86.18

REVENUE AND EXPENDITURE.

	REVENUE.		EXPENDITURE.	
	In Dollars.	In Sterling.	In Dollars.	In Sterling.
1889-1890..	2,509,282 11	522,767 2 1½	2,408,846 47	501,843 0 3½
1890-1891..	2,688,967 90	560,201 12 11	2,548,965 49	531,034 9 6½
1891-1892..	2,705,647 77	563,676 12 4½	2,606,324 84	542,984 6 10
1892-1893..	2,752,622 60	573,463 0 10	2,603,854 30	542,469 12 11
1893-1894..	2,893,261 48	602,762 16 2	2,720,798 59	566,833 0 9½
1894-1895..	2,823,576 67	588,245 2 9½	2,815,133 54	586,486 3 1
1895-1896..	2,725,198 43	567,749 13 5½	2,863,166 60	596,493 0 10
1896-1897..	2,667,719 12	555,774 16 4	2,834,957 54	590,616 3 1
1897-1898..	2,425,769 34	505,368 12 3	2,709,871 02	561,556 9 3
1898-1899..	2,524,152 29	525,865 1 2½	2,521,860 12	525,387 10 6
1899-1900..	2,586,425 83	538,838 14 3½	2,522,605 73	525,542 17 2
1900-1901..	2,447,761 92	509,950 8 0	2,426,364 30	505,492 11 3
1901-1902..	2,803,391 14	584,039 16 5	2,629,784 72	547,871 16 4
1902-1903..	2,675,285 39	557,351 2 5½	2,408,181 55	501,704 9 9½
1903-1904..	2,668,096 24	555,853 7 8	2,545,080 09	530,225 0 4½
1904-1905..	2,484,924 74	517,692 13 1	2,453,915 28	511,232 7 0
1905-1906..	2,507,966 56	522,493 0 8	2,429,631 15	506,173 3 1½
1906-1907..	2,571,579 12	535,745 13 0	2,467,455 90	514,053 6 3
1907-1908..	2,631,807 79	548,293 5 9½	2,502,763 68	521,411 3 8
1908-1909..	2,592,082 00	540,017 1 8	2,588,586 00	539,288 15 0
1909-1910..	2,593,292 56	540,269 5 8	2,624,213 04	546,711 1 0
1910-1911..	2,702,884 69	563,100 19 6½	2,605,238 14	542,757 18 11
1911-1912..	2,848,793 98	593,498 14 11	2,825,404 12	588,625 17 2

PRINCIPAL SOURCES OF REVENUE.

Year.	Import Duties.	Wines and Spirits.	Rum.	Retail Spirit Licences.	Gold.
1903-1904.	£ 314,423	£ 28,920	£ 15,934	£ 52,074	£ 16,168
1904-1905.	280,017	28,630	11,745	50,932	17,629
1905-1906.	282,985	28,899	7,374	60,672	13,760
1907-1908.	291,313	32,578	8,151	64,149	9,802
1908-1909.	274,531	34,780	16,371	64,028	10,742
1909-1910.	271,600	36,019	17,989	63,708	9,504
1910-1911.	278,905	37,413	17,343	68,798	8,083
1911-1912.	304,315	43,376	18,234	61,549	7,096

ROADS.

The public roads of the colony may be classed under two general heads :—"Coast" roads, and "Bush" roads, as the roads in the interior are called.

COAST ROADS.

The coast roads run throughout their entire length within a mile, more or less, of the sea, crossing *en route* all the Plantations and Villages situated within the occupied portion of the sea coast of the colony. They extend from "Better Success" on the north coast of the county of Essequibo, in the west, to Plantation Skeldon on the left bank of the Courantyne River in the east, with branch roads extending for short distances up the banks of the principal rivers crossed on the way, the whole being connected by bridges and steam ferries.

The total length of road between the points named is 268 miles, which includes 30 miles of roads in the islands of Leguan and Wakenaam at the mouth of the Essequibo River. (Leguan, 21 miles, Wakenaam, 18 miles.)

Under Ordinance 13 of 1905 the Colonial Civil Engineer is responsible, subject to directions from the Governor, for the general care and supervision of the roads including those formerly maintained by the proprietors of sugar plantations.

In addition to the roads dealt with above, and falling within the category of "Coast" roads there are 56 miles of streets in Georgetown and 15½ miles in New Amsterdam. For the upkeep of the streets of Georgetown the Mayor and Town Council are responsible. Towards the costs of maintenance, which averages \$19,300 per annum, the Government contributes a fixed sum of \$5,000 a year.

The maintenance of the roads passing through sugar plantations has been taken over by the Government as from the 1st April, 1905.

The cost of maintenance of the streets of New Amsterdam is borne one-half by the Municipality of that town and one-half by the Government.

STEAMER COMMUNICATION.

WITH UNITED KINGDOM.

By Royal Mail Steam Packet Company, Limited, to Southampton, *via* Trinidad, where the intercolonial steamer connects with the ocean boat and passengers tranship.

Agents in Demerara :—Garnett & Company, Lots 18 and 19, Water Street.

Offices :—18, Moorgate Street, London.

R.M.S.P. Buildings, Southampton.

Fares.

1st Class Single	£25	...	Return	£40
2nd " "	20	...	"	30
3rd " "	10			

These steamers run regularly every fortnight.

THE ROYAL MAIL STEAM PACKET COMPANY AND DIRECT LINE
JOINT PASSENGER SERVICE.

Agents :—Curtis, Campbell & Co., La Penitence, Demerara.
Royal Mail Steam Packet Company, 18, Moorgate
Street, London, E.C.
Prentice, Service & Henderson, 175, George Street,
Glasgow.
Scrutton, Sons & Company, 16, Fenchurch Avenue,
London.

These steamers run regularly every fortnight. During the
sugar seasons extra steamers are put on the route.

Fares.

To London or Glasgow—Single £17 10s. Return £35
From Glasgow " 15 15s. " 31 10s.
Children under 16 years £1 1s. per year; under 12
months free.
Servants travelling with family £8; if alone, £12.

LIVERPOOL LINE OF STEAMERS.

Agents :—Booker Bros., McConnell & Co., Ltd., 49-53, Water
Street, Demerara.
Booker Bros., McConnell & Co., Ltd., 77 The Albany,
Liverpool.

Sailing tri-weekly from Liverpool from September to March,
and monthly from April to August. Passengers are carried by the
S.S. "Imataka" only.

THE EAST ASIATIC COMPANY, LIMITED, WEST INDIA LINE.

Agents :—Sandbach Parker & Company, 43-46, Water Street.
The fare Demerara to London is :—

Single £20 ... Return £38
Return tickets are available for twelve months.
Regular monthly sailings.

WITH CANADA.

PICKFORD AND BLACK'S CANADIAN LINE OF MAIL STEAMERS.

Under contract with the Imperial and the Canadian Govern-
ments for the transmission of Mails between Canada, Bermuda,
West Indies and Demerara.

Agents :—Sandbach Parker & Company, 43-46, Water Street,
Georgetown, British Guiana.

Sailings.

From Halifax, N.S., every 12 days. From Demerara alter-
nately every 11 and 13 days.

Fare from Demerara to

	1st Class.	2nd Class.
St. John or Halifax	... \$75 00	\$50 00

Children under 12, half fare ; under 8, quarter fare ; and 1 child under 3, free. Servants in Cabin, 2nd Cabin fare.

Passengers can be booked to Bermuda, from which port there is frequent opportunity for New York.

Passengers can be booked to Halifax or St. John, N.B., from which ports there are frequent opportunities for England and Europe. No return tickets issued to W.I. Islands.

WITH NEW YORK, U.S.A.

QUEBEC STEAMSHIP COMPANY, LIMITED.

Agents :—Thom & Cameron, Limited, 14-16, Water Street.

Ports of Call.

New York, St. Thomas, St. Croix, St. Kitts, Antigua, Guadeloupe, Martinique, Dominica, St. Lucia, St. Vincent, Barbados and Demerara. Single Fares : 1st Class \$70 to \$80. Steerage \$32.50.

Sailings :—Every fourteen days to and from the West Indies and Demerara. A local Dutch Mail between Demerara and Paramaribo (Surinam) leaves Georgetown every "Mail Thursday" returning from Paramaribo on the Saturday of the week following.

ARMSTRONG LINE OF STEAMERS.

Agents :—Booker Bros., McConnell & Co., Ltd., Water Street, Demerara.

L. W. & P Armstrong, 106, Wall Street, New York.

Carrying United States and Colonial Mails, but no passengers. Sail monthly. Average passage 12 days.

WITH FRANCE.

COMPAGNIE GENERALE TRANSATLANTIQUE.

Agents :—Wieting & Richter, Ltd., 12, Water Street, Demerara. Sailings every four weeks.

Some of the Principal Ports of Call.

Saint Lucia, Trinidad, Demerara, Surinam and Cayenne.

Fares.

1st Class Single. Between Decks. 1st Class Return.

Georgetown

to St. Nazaire ...	\$150	\$80	\$225
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Children up to 3 year of age free ; from 3 to 8 years, $\frac{1}{2}$ fare ; from 8 to 12, $\frac{1}{2}$ fare.

Return tickets for Europe are available for 1 year.

If tickets are taken on board 20 per cent. more is charged.

The passage for servants (men and women) is 100 francs.

Reduction of 15 per cent. to families paying equal to four first-class passengers. Return tickets to Europe available for 1 year, 25 per cent. rebate if two are taken. Colonial return tickets, available 3 months, 15 per cent. rebate.

WITH HOLLAND.

KONINKLIJKE WEST INDISCHE MAILDIENST.

Royal Dutch West India Mail Service, under contract with the Netherlands Government for the conveyance of Mails.

Agents at Demerara:—The New Colonial Company, Ltd., 24 Water Street.

General Agency, New York:—Royal Dutch West India Mail, 17, State Street.

Freight Agents, New York:—Funch Edge Co., 8-10, Bridge Street.

Head Office:—125, de Ruyterkade, Amsterdam.

Passenger Fares from Demerara.

Ports.	1st Class Single.	Return.	2nd Class.
Amsterdam	\$160 00	\$240 00	\$80 00
New York	90 00	153 00	55 00

Return tickets to Amsterdam and New York are available for 12 months and to other ports 4 months. No return tickets are issued for 2nd Class and no deck tickets for Amsterdam or New York.

INTERNAL AND COASTAL SERVICE.

(SEE EXCURSIONS.)

TRAMWAYS.

In Georgetown and on the East Bank of the Demerara River as far as Peter's Hall, there is an Electric Tramway worked on the overhead trolley system with 15 miles of line, of 4' 8½" gauge, operated by the Demerara Electric Company, a Canadian concern with a capital of \$425,000.

Single fares without a ticket—5 cents. Adult tickets can be purchased in strips of three tickets for 12 cents. Books of 60 tickets can be purchased for \$2.40 a book.

Children's tickets for children under twelve can be had in strips of 9 tickets for 24 cents.

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THE PERMANENT EXHIBITIONS COMMITTEE OF BRITISH GUIANA, 1913.

This Committee was established in 1907, and the Members are appointed by the Governor. Its objects and duties are to consider and advise in regard to all questions relating to the representation of the colony at foreign and other Exhibitions ; to re-establish the British Guiana Court at the Imperial Institute and to be thereafter responsible for the maintenance of the Court in a state of efficiency ; and to deal with all references to the Imperial Institute in connexion with the utilization of the Technical Laboratories of the Institute.

PERSONNEL.

Chairman—His Excellency the Governor, Sir Walter Egerton, K.C.M.G.

Deputy Chairman—The Director of Science & Agriculture.

Members—The Colonial Civil Engineer.

The Commissioner of Lands and Mines.

The Assistant Director of Science and Agriculture.

The President of the Royal Agricultural and Commercial Society.

A Second Representative of the Royal Agricultural and Commercial Society.

A Representative of the Chamber of Commerce.

The Chairman of the Planters' Association.

A Representative of the Institute of Mines and Forests.

The Hon. F. Dias, M.C.P.

J. Wood Davis, Esq., F.R.

C. W. Anderson, Esq., I.S.O.

Rev. J. Aiken, M.A.

John Mullin (Hon. Secretary).

Representatives in England—

The Hon. Charles Bruce, G.C.M.G.

The Secretary, West India Committee.

The Committee invites enquiries in reference to British Guiana, its industries, resources and manufactures.

Address to :—

HONORARY SECRETARY,

Permanent Exhibitions Committee,
British Guiana.

WORKS OF REFERENCE.

- Pocket Guide to the West Indies : by A. E. Aspinall,
1910, pub. E Hartford, 3/6.
- History of British Guiana : by J. Rodway, F.L.S.,
1891, London, pub. "Argosy" 3 vols., price \$9.00.
- Guiana, British, Dutch and French : by J. Rodway,
pub. Fisher Unwin, London, price 10/6.
- In the Guiana Forest : by Jas. Rodway, F.L.S., pub.
Fisher, Unwin, London, price 7/6.
- Our Search for a Wilderness : by C. W. Beebe, pub.
Henry Holt & Co., New York, price \$2.75.
- Under the Roof of the Jungle : by C. Livingstone-
Bull, pub. Duckworth, London, price 6/-
- The Geology of the Gold Fields of British Guiana :
by Prof. J. B. Harrison, C.M.G., pub. Dulau
& Co., 5/-
- British Guiana and its Resources : by Prof. J. B.
Harrison, C.M.G., pub. West India Committee,
London, 6d.
- Rubber and Balata in British Guiana : by Prof. J. B.
Harrison, C.M.G., and F. A. Stockdale, pub.
"Daily Chronicle" Office, Georgetown, price 6d.
- The Journal of the Board of Agriculture of British
Guiana : issued by the Board of Agriculture,
quarterly, price 1d.
- "Timehri"—The Journal of the Royal Agricultural and
Commercial Society : pub. half-yearly, price 2/6.
- A Compendium of Useful Information relating to British
Guiana : by C. W. Anderson, pub. Department
of Lands and Mines. Free.
- Forests of British Guiana : by C. W. Anderson,
Forestry Officer, pub. by Department of Lands
and Mines, price 1/- and 2/-
- Publications of Permanent Exhibitions Committee—
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| The Sugar Industry | } | Free. |
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- "Daily Chronicle" Map of British Guiana, "Daily
Chronicle" Office, price 1/- paper.

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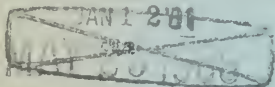
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